

FLIGHT

The
**AIRCRAFT
ENGINEER
&
AIRSHIPS**

First Aeronautical Weekly in the World. Founded January, 1909

Founder and Editor : STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 1030. (No. 38. Vol. XX.)

SEPTEMBER 20, 1928

Weekly, Price 6d.
Post free, 7d.

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2.

Telephone: Holborn 3211. Telegrams: Truditur, Westcent. London.

Annual Subscription Rates, Post Free.

United Kingdom .. 30s. 4d. Abroad .. 33s. 0d.*

* Foreign subscriptions must be remitted in British currency.

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"FLIGHT" PHOTOGRAPHS

To those desirous of obtaining copies of "Flight" photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2.

For Sizes and Prices, see Advert. on page xlix.

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1928

Sept. 10-21 French International Light 'Plane Meeting at Orly

Sept. 29 Northampton Air Pageant

Oct. 7-28 International Aircraft Exhibition, Berlin

Oct. 8 Aero Golfing Soc.—Team Match v. Stage G.C.

Oct. 24 Aero Golfing Soc.—"Cellon" Challenge Cup

Dec. 3-8 International Aeronautical Exhibition, Chicago, Ill.

Dec. 12-14 International Conference on Aviation, Washington, U.S.A.

1929

Oct. 31 Guggenheim Safe-Aircraft Competition Closes

"FLIGHT" SUBSCRIPTIONS

The attention of readers is called to the fact that a "FLIGHT" subscription form will be found on page 1.

EDITORIAL COMMENT



ALTHOUGH the "Circuit of France" is not yet completed, and delays and breakdowns may still change the placing of competitors, there is every probability that the French Light 'Plane Competition, which commenced at Orly on September 10, will be won this year by Great Britain. It will be recollected that the competition was divided into two distinct sections: a series of technical tests and a reliability tour of France. It was in the former that the points were gained which established the placing of competitors. In the reliability test, which is now proceeding, it is only a question of covering the prescribed stage each day between the hours of 8 a.m. and 4 p.m., 60 points being awarded every competitor who completes his stage within that time. Thus it is not possible to gain extra points in this test, although it is, of course, possible to lose points by failure to complete one or more stages. In fact, Herr Lusser, the leader up to the present, failed to complete one of his stages in the time limit set, and thereby lost 60 points. Unfortunately, he appears to be missing, and may have met with an accident.

While reliability is obviously a very desirable quality in a light 'plane, and the test was very rightly included in the competition, the technical interest of the meeting lies rather in the various tests of the first section of the competition.

In our issue of August 2, 1928, we referred, in Editorial Comments, to the relative chances of a machine like the little Klemm-Daimler and one like the de Havilland "Moth." From these very rough estimates, we arrived at the conclusion that in the "Efficiency Test," where marks were awarded on a basis of useful load carried, speed over the 400-km. circuit, and fuel consumed for that distance, it should be possible for the "Moth" to beat

the Klemm-Daimler, chiefly owing to the relatively low speed of the latter.

Actual events have proved these estimates slightly erroneous, mainly because of the substitution, in Herr Lusser's Klemm monoplane, of a 40-h.p. Salmson engine for the 20-h.p. Mercedes of the original Klemm-Daimler. An examination of the tables and figures given in our representative's account of the meeting in this issue will show that Herr Lusser carried, in the "Efficiency Test," the amazing useful load of 245.8 kg. (541 lbs.). Assuming the Salmson engine to develop about 50 h.p., this represents a power loading (for useful load) of no less than 10.8 lb./h.p. With the extra power of the Salmson engine, the average speed was a good deal higher than that estimated by us for the Mercedes-engined Klemm, i.e., 112.64 km./hr., as against the 95 km./hr. which we estimated for the lower-powered machine. Herr Lusser achieved a petrol consumption for the 400 km. of 25.7 kg., thus gaining 1,077 points in the "Efficiency Test."

Capt. Broad, on the De Havilland "Gipsy-Moth," carried a useful load of 214.8 kg., and consumed 33.1 kg. of fuel, his average speed being 142.94 km./h., and the number of points scored in this test being 927.

Owing to the considerable useful load carried by both machines, the take-off distances were somewhat longer than usual, Lusser's being 112.5 m. and Broad's 106 m., the exceptionally great load of the Klemm resulting in a fairly long run, as the machine with normal load leaps off the ground in less than half that distance.

In the climbing test the two machines were not quite so evenly matched, the Klemm taking 13½ minutes, while the "Gipsy-Moth" took only 8 mins. 50 secs.

Through his failure to complete one of the stages in the "Tour de France," Lusser lost 60 points, so that the relative position at the moment of going to press is a difference of only 50 points.

Capt. Percival, on an Avro "Avian," with "Cirrus III" engine, is at present in third place, with a total number of points of 1,126 in the technical tests. Percival's take-off was accomplished in 139.5 m., and his climb in 10 mins. In the "Efficiency Test" he carried a useful load of

224.4 kg., consumed 34.4 kg. of fuel, and averaged 137.74 km./h. As a result he gained 898 points in this test, and on the whole competition is but 35 points behind Capt. Broad.

Lady Heath, also on an "Avian-Cirrus III," is at present fourth, with a total of 1,100 points in the technical tests, and hitherto she has completed every stage in the reliability trial. Thus Great Britain is doing extremely well in the competition, and may still easily win first, second and third place, although no one would be more sorry to see Herr Lusser lose by sheer bad luck than would the British contingent.

❖ ❖ ❖

Our "Maple Leaf" Number

The second of our series of special numbers dealing with aviation in the British Dominions is published this week, and deals with aviation in Canada. As in the case of our Australia number, it has been written by Maj. F. A. de V. Robertson, and we feel sure that it will be found at least as interesting as the previous supplement.

The history of the development of flying in Canada is, as Maj. Robertson points out, unique and has no parallel in any other country. Instead of commencing with subsidised air services for the carrying of passengers and goods, the Canadian Government was the first to realise what the aeroplane had to offer in the way of rapid survey of large forest areas, and it was for the purpose of locating forest fires that Canada first used aircraft. That branch has now been developed to a high state of perfection, and other uses of aircraft have followed, and have already achieved considerable success. That Canada will soon offer a promising field for the British aircraft constructor there can be no doubt, and it is gratifying to find that, in spite of allegations to the contrary which have been made in various quarters, the British aircraft industry is alive to the fact. Already three British firms have established Canadian branches and there is little doubt that, as Canada's needs increase, that number will be added to.

In the meantime we hope to have succeeded not only in producing a number which will interest our readers, but which will also be of service to the aircraft industry in giving a picture of the sort of aircraft work which Canada requires.





Orly, France, Wednesday, Sept. 12
In our opening report of this Light 'Plane Meeting at Orly, we mentioned that the weighing in of the competing machines was commenced on the Sunday, September 9, as they had all arrived in good time. Each machine had to conform to a maximum tare weight of 880 lbs. (400 kgs.). Weighing was continued on Monday, the opening day, and the competing machines and tare weights recorded were as follows:—

Competitor	Machine	Tare Weight
Capt. H. Broad	Gipsy-Moth	392 kilos (862.4 lbs.)
Lady Heath	Avro "Avian" (Cirrus Mk. III)	395 kilos. (869 lbs.)
Capt. N. Stack	Avro "Avian" (Cirrus Mk. III)	390 kilos. (858 lbs.)
Capt. E. W. Percival	C.L.A.4 (Bristol "Cherub")	251.5 kilos. (553.3 lbs.)
Flt.-Lt. N. Comper	Caudron (Salmson, 40 h.p.)	337 kilos. (741.4 lbs.)
M. M. Finat	Caudron (Anzani, 50 h.p.)	368 kilos. (809.6 lbs.)
M. Massot	Caudron (Anzani, 70 h.p.)	392 kilos. (862.4 lbs.)
M. Vanlaere	Caudron (Salmson, 60 h.p.)	391 kilos. (860.2 lbs.)
M. Delmotte	Klemm (Daimler, 20 h.p.)	274 kilos. (602.8 lbs.)
Herr Aichele	Klemm (Salmson, 40 h.p.)	314 kilos. (690.8 lbs.)
Herr R. Lusser	Guerchais-Henriot (Anzani, 50 h.p.)	398 kilos. (875.6 lbs.)
M. Lemerre	Albert (Salmson, 40 h.p.)	253 kilos. (556.6 lbs.)
M. Fisbach	Caudron (Salmson, 40 h.p.)	381 kilos. (838.2 lbs.)
M. Massot		

These were the fourteen competitors who qualified. The original entries numbered 25. The 12-h.p. Salmson "Peyret-Nessler" did not compete, as M. E. Nessler, the pilot, considered his chances not good. A Mauboussin monoplane (A.B.C. "Scorpion," Mk. II, 34 h.p.); an Aireau monoplane (Anzani 25 h.p.); and a Leduc monoplane (Ruby, 30 h.p.) were not ready.

Quality Competition

At the very beginning of the meeting the Guerchais cabin monoplane and the Albert monoplane were each awarded 15 points for having wing and tail coverings of three-ply. Official examinations of the machines were then made to award points for various qualities. For each passenger carried 15 points were given, the minimum weight being 75 kgs. (165 lbs.). That could be made up with other weight if necessary. A cockpit was only considered as proper passenger accommodation if it had a space for a passenger 1.75 m. (5 ft. 9 in.) high. Five points were given for parachutes placed so that they could be used. Incidentally, Irvin parachutes were ruled out and our competitors had to obtain

French parachutes. According to the weight mentioned of the French type, the Irvin is 2 lbs. lighter, but it is apparently not officially recognised as yet.

For machines having tanks placed in positions safeguarded from fire as far as possible and carrying anti-fire appliances, 20 points were granted. For engine-starting gear carried on the machine 10 points were given, 10 for dual control, 5 for designs which prevented overturning of the machine or protected the occupants in such events. Emergency exits qualified for such points. Finally, 5 points were allowed for comfort and good visibility.

Involved in the points awarded for the starting appliances was the test of starting the engine three times during 15 mins., the first time from cold, and keeping the engine running for 1 min. after each start. Lady Heath introduced the inevitable touch of comedy to the meeting in her attempts to devise a gadget that would answer the description of a starting gear. She got a cone-shaped cap with cord attached and tried to start up without touching the propeller herself by fitting the cap on the tip of the blade and wrenching at the cord. This, after long struggles, failed, but her continued efforts to win the 10 points made other competitors similarly without starting gear to follow suit. Capt. H. Broad proposed the use of his flying helmet. Naturally things became in the nature of a farce because other competitors could not allow Lady Heath to gain on them when equal remedies were possible. Thus the officials were forced to make a ruling on the issue, resulting in the impromptu devices being disqualified. Then Lady Heath tried to conform to the conditions by lengthening the cap cord with a safety belt, and pulling on the propeller from the front cockpit. This also failed.

Finally, she purchased for 300 francs a French device for starting up. A cap fits on the tip of the propeller blade with Sandow cords attached which are stretched to a picket on the ground. Another cord from the cap is attached to another picket on the other side, and when the overhanging length of this cord is released the cap flies off, giving the propeller a kick. After many humorous attempts this device started up the "Avian-Cirrus" and Lady Heath was awarded the coveted points. But in the meantime she had done her flying tests, carrying a fire extinguisher especially to make up for the weight of the absent starting gear, in accordance with an understanding with the French officials. Later in the meeting, however, they revoked their decision because the starting gear had not been carried, and Lady Heath lost the points.

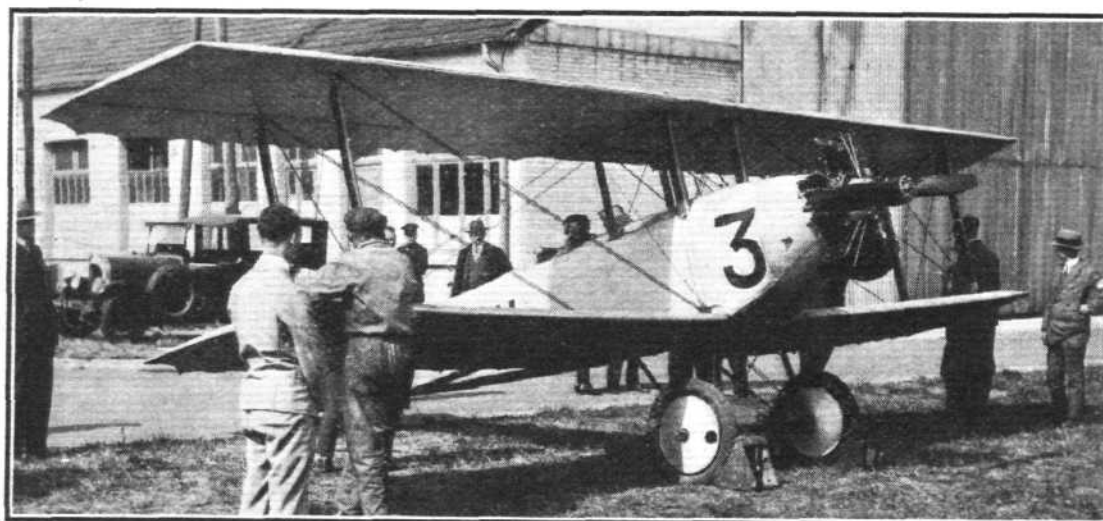
Dismantling and Erecting Test

To return to events in their proper order. After the weighing of the machines empty and with the useful loads, which included the weights of the pilots, passengers, parachutes, and ballast, the "outdoor" tests began with the starting of the engines three times in 15 mins. (mentioned above); then came the dismantling and erecting tests. Here our light 'planes were superior. Each machine had to be wheeled through two posts each 9.84 ft. wide, 11.5 ft. high and 32.8 ft. apart. To comply with this our machines had merely to have the wings folded and then opened again after passing through.

As 30 mins. were allowed for the test, there was no need for our pilots to hurry, but naturally they revealed the easy

M. Finat's Caudron monoplane which he got off in the shortest distance during the take-off tests (91 metres).

["FLIGHT" Photograph]



The Caudron biplane (Salmson) about to start for the Efficiency Tests, piloted by M. Massot.

["FLIGHT" Photograph]

The Albert monoplane (Salmson), a single seater, covered entirely with three-ply which gained it 15 points immediately.

["FLIGHT" Photograph]



This French cabin machine, the Guerchais - Henriot (Anzani) also got 15 points for rigid coverings. It seats two comfortably in a diagonal position.

["FLIGHT" Photograph]



folding qualities to the utmost by rushing through as fast as possible. Each pilot was allowed three assistants, and after the wings had been folded again, the engine had to be started up and a take-off made. The time was taken up to the moment of the take-off.

Capt. Percival, on an Avro "Avian" (who was second) went through the test with excellent speed until the engine refused to start and the delay accounted for the greater part of his time, 7 mins. 43 secs. Lady Heath (Avian) put up the best time, viz., 2 mins. 13 secs. Capt. H. Broad was third, with 8 mins. 8 secs. on the Gipsy-Moth. Those machines not designed for folding went to the extremes in this test, some running close to the limit, 30 mins. The Albert monoplane had to have the wing taken down completely, and the total time taken up to the moment of take-off was 26 mins. 41 secs. Both Klemm monoplanes provided steady industry for their pilots, Herr Lusser and Herr Aichele, the wings having to be absolutely detached from the short centre sections and fitted on each side of the fuselage. For this purpose, there is a slot in the catwalk on each side of the fuselage, in which a knob fitted on the leading edge of the wing slots in. Then for the other end of the wing there are pins sliding into clips on the side of the fuselage.

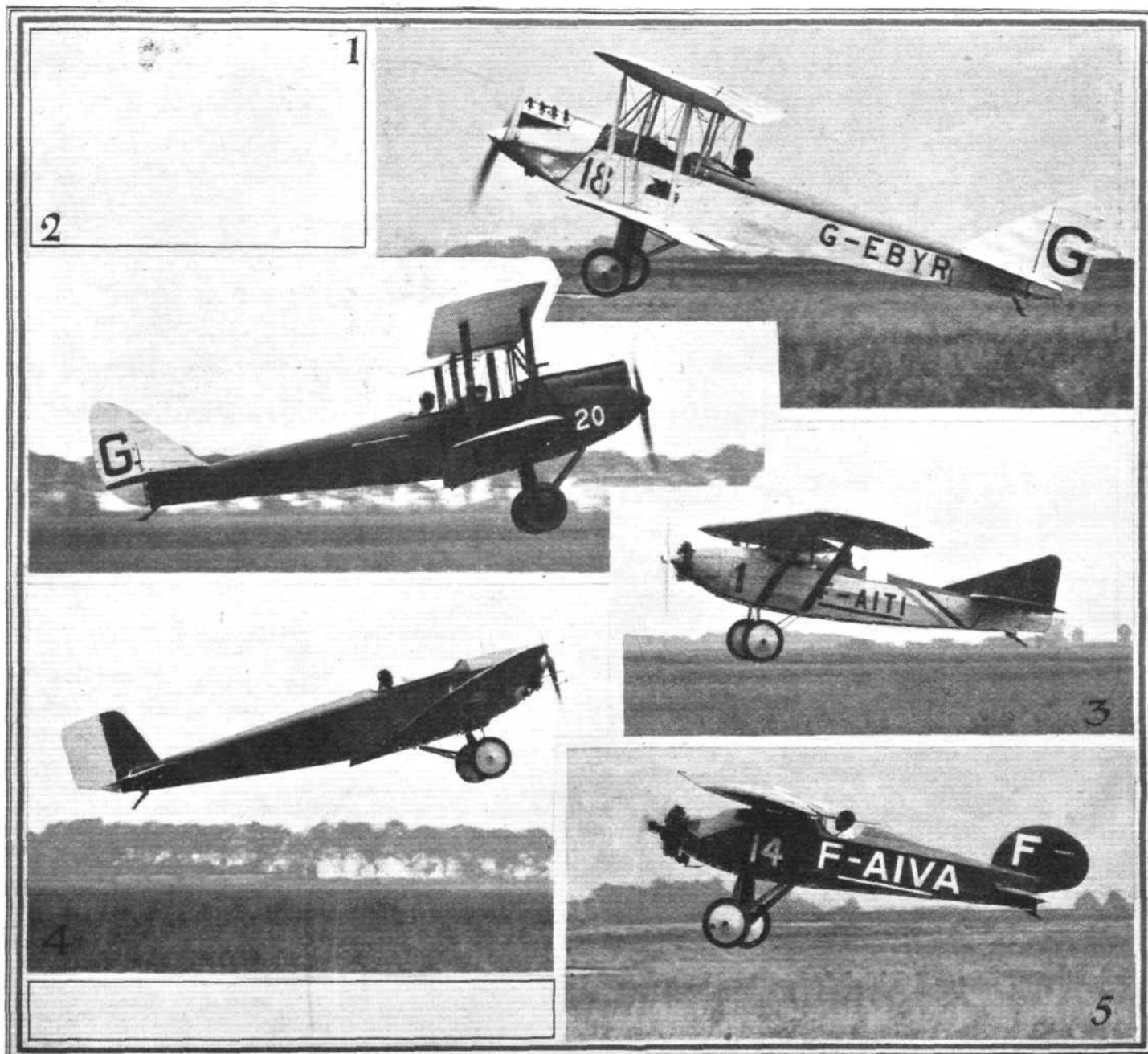
Incidentally, the starboard wing has to be carried round and fitted to the port side for this dismantling, and vice versa. Herr Lusser got through in 17 mins. 33 secs., and Herr Aichele in 25 mins. 12 secs. Flt.-Lt. N. Comper's machine, the C.L.A.4, also involved steady going, then when

he got away, his engine cut out over the far side of the aerodrome, so that he did not complete the necessary five minutes of flying involved in the event. The trouble was due to a fly in the carburetter.

Home Competitors' Troubles

By the way he was delayed in entering, owing to the chassis trouble which started on the Sunday with his forced landing. It will be remembered that he was promised a new and complete repair by the French mechanics by the following morning (Monday), which still allowed time to weigh in and compete. True to their word, the C.L.A.4 was wheeled out to time, but fate had seized "Nick" Comper for its own at Orly, as hardly had the biplane left the shed, when a chassis tube gave way. Then, for the rest of the day, he had to go to Paris to arrange for repairs.

It is jumping ahead a bit in the order of events, but one might as well tell his bitter story right through now, dry our tears, and take up the brighter side of life again. He got his machine finished on Tuesday, and made a belated entry into the competition, thanks to the sporting tolerance of the French officials and competitors. He took off for the altitude test, in which 4,920 ft. had to be reached in the shortest possible time, the maximum being 30 mins., and disappeared over the French military sheds. Time passed to a point when it was obvious that something had occurred again, and in due course, the machine returned *via* the road the following morning. This time, an oil pipe had broken and



TAKING OFF AT ORLY : (1) The Avro "Avian" (Cirrus) flown by Capt. Percival. (2) The Gipsy-Moth flown by Capt. H. Broad. (3) The Caudron (Salmson) monoplane, piloted by M. Finat. (4) The Klemm (Salmson) flown by Herr Lusser. (5) The neat little Albert (Salmson) monoplane flown jointly by M. Magnard and M. Fisbach.

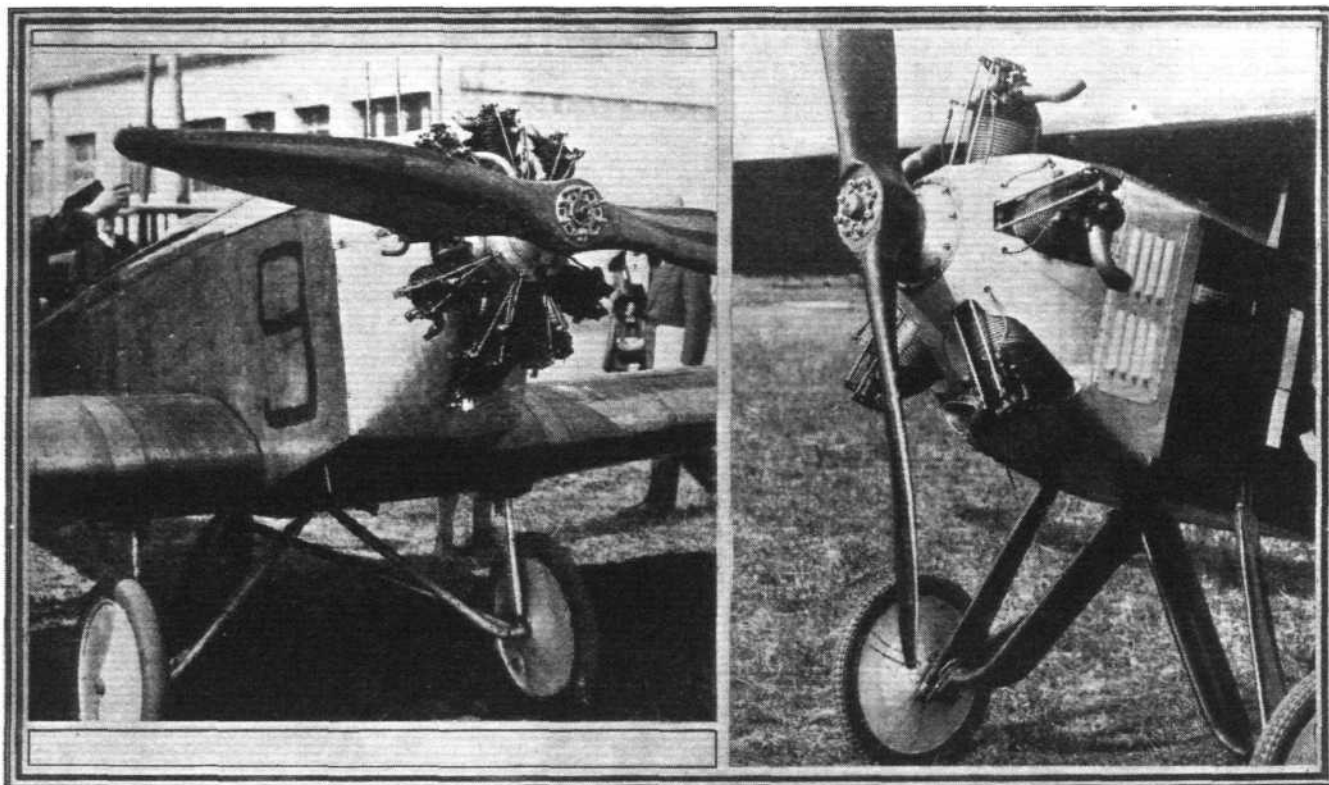
the engine had seized; further, the altitude register had broken and Comper had tried to climb by the horizon. His forced landing had been made in a potato field without damage.

The last one heard of Comper's intentions was that he was determined to fly his machine back across the Channel. He must make a compromise with fate first.

Whilst we are in this period of woe, we had better get through with Capt. N. Stack's experience. On Monday morning, on the verge of events, his petrol tank decided to leak, without the slightest provocation. A spare tank was already well on the way, but when wanted it was impossible to find which way. There were rumours that it was somewhere being here and there, which was not anywhere near the Avro "Avian's" top wing.

Capt. Stack consulted authority and received permission

Capt. H. Broad did not receive points for a device preventing overturning, as he elected to have the ordinary D.H. undercarriage in place of the split undercarriage, as it gave the Gipsy-Moth another four or five miles in speed. Capt. Stack got points totalling 70 in the quality tests before he was eliminated. On Monday, Flying Officer Atcherley gave another spectacular demonstration on Flt.-Lt. Soden's Genet-Moth, in which he had been touring in Spain with Soden. He performed his very low slow rolls lower than ever, commencing it seemed, at the very beginning of a climb from close to the deck. He also circled the aerodrome inverted, both clockwise and anti-clockwise, and accomplished the falling leaf whilst inverted. Finally, he brought the machine down, slewing it from side to side, so accurately in a deliberately confined area. Incidentally, stunting was forbidden at Orly and when Atcherley went up and commenced



["FLIGHT" Photographs]

Showing the Salmson 40 h.p. engine in the Klemm-monoplane (left), which has brought Herr Lusser provisionally top of the competition. (Right) Cowling arrangement of the Walter 60 h.p. engine in an Albert monoplane.

to borrow Lady Heath's tank, with which he went through with the climbing test and take-off test. Meanwhile, his cracked tank was sent into Paris to be welded. Then it was suddenly sprung on Capt. Stack that his tests would not count, owing to the change of tank, but that he would be given until Tuesday night in which to compete again with his own tank. The reason given for this revoking of authority was that one competitor had protested, and the French officials, who had been exceedingly sporting, as in Comper's predicament, were obliged to take action. The only hope then was that the tank sent for welding to Paris would return in time. It did. A car suddenly drew up, about 5 p.m. (Tuesday afternoon) *avec* tank. Capt. Stack jumped up from his café chair, gave one glance at it and sat down again. He would have had every justification for collapsing. It is true that the welding, admittedly a difficult job, had been done, but so had the tank in the process. So there were two Avro "Avians" and one Gipsy-Moth left to see England through.

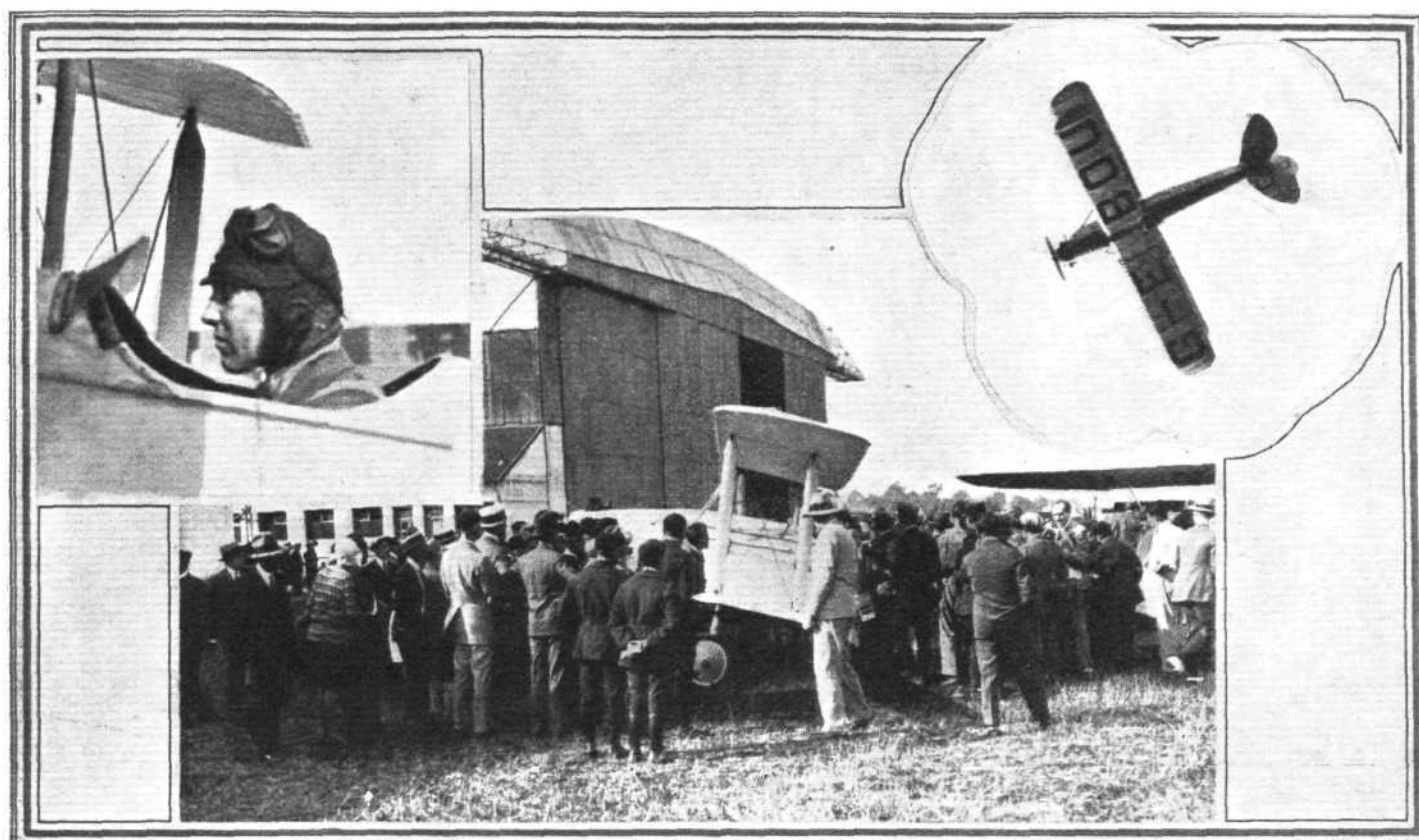
with a roll, the gendarmes indicated that he would be arrested, but when he followed up with his inimitable display, they were compelled to forget their official attitude and become admiring human beings. With the result that Atcherley was fêted rather than arrested.

Climbing and Take-off Tests

These tests took place on Tuesday. Machines started from a fixed mark and tried to take off in the shortest possible distance, the maximum allowed being 250 m. Those who took longer were disqualified. Points were awarded at the rate of one point for each 4 m. between the maximum distance and the distance actually taken for getting off. In the climbing tests, 1,500 m. (4,920 ft.) had to be reached in the shortest possible time, the maximum time allowed being 30 min. Points were awarded at the rate of two for every 20 secs. between the 30 mins., and the time actually taken. As detailed above, points were awarded for various qualities, all of which involved the load carried. Herr Aichele on his

Quality Competition Results

Competitors and Machines			Para-	Fire	Dual	Passen-	Visibili-	Over-	Starting	Dismantling		Rigid ↑	Total
			chutes		Control	gers	Comfort	turning	Up	(and time)	m. s.	Coverings	Points
Lady Heath (Avro-Avian)	..	..	10	20	10	15	5	5	—	15	2 13	—	80
Capt. Percival (Avro-Avian)	..	..	10	20	10	15	—	5	—	15	7 43	—	75
Capt. Broad (Gipsy-Moth)	..	..	5	20	10	15	5	—	—	15	8 8	—	70
M. Delmotte (Caudron C.110)	..	..	10	20	10	15	—	—	10	—	—	—	65
M. Fisbach (Albert)	..	..	5	20	—	—	—	5	—	15	26 41	15	60
M. Lemerre (Guerchais-Henriot)	..	..	—	20	—	15	5	5	—	—	—	15	60
Herr Lusser (Klemm)	..	..	—	20	10	—	—	5	10	15	17 33	—	60
M. Massot (Caudron 109)	..	..	5	20	—	—	—	—	10	15	6 45	—	50
M. Finat (Caudron)	..	..	5	20	10	—	—	—	10	—	—	—	45



["FLIGHT" Photographs]

One of the memories of the Only meeting for the French and Germans (to judge from their impressions) will be of the stunting display of Flying-Officer Atcherley on the Genet-Moth, the first of that type ever constructed. (Inset left) Flying-Officer Atcherley, and (inset right) shows the machine in a slow roll, whilst in the centre is evidence of the reception he got after the display.

Klemm-Daimler was eliminated from the competitions through failure in this test, for a reason that he had every reason to feel chagrined about. Prior to his climb, he had been using K.L.G. plugs with every satisfaction, then came a mechanic down to attend to his engine, and he persuaded him to change the K.L.G. plugs for another kind. As Herr Aichele was climbing, a plug blew out and simultaneously blew him out of the meeting. Incidentally, he humorously

to the following formula ; $\frac{P \times V}{C}$. P was the useful load in kg. ; V the speed in km. h. ; and C the total consumption in kg. of fuel and oil for the circuit. The course was to Buc and back, a distance of 31 miles, which had to be covered eight times, the turning point being flagstaffs on the aerodrome. Lady Heath was clearly trying mainly for speed in this contest at the expense of points for consumption.

Climb and Take-off Tests Results

Competitor and Machine	Height			Time		Points	Take-Off		Points
	Metres			m.	s.		Metres.	Yards.	
Capt. Broad (Gipsy-Moth)	15	00	128	106.00	(115.54)	36
Capt. Percival (Avro-Avian)	10 0	120	139.50	(152.05)	28
Lady Heath (Avro-Avian)	10 40	116	115.00	(125.35)	34
M. Fisbach (Albert)	11 30	112	116.50	(126.98)	33
Herr Lusser (Klemm)	13 30	100	112.50	(122.62)	34
M. Massot (Caudron)	16 30	82	104.00	(113.36)	37
M. Lemerre (Guerchais-Henriot)	19 20	64	95.00	(103.55)	39
M. Delmotte (Caudron)	21 30	52	137.50	(149.8)	28
M. Finat (Caudron)	29 50	2	91.00	(99.19)	40

attributed part of his bad luck to not carrying his mascot on the trip. Lady Heath was at first credited with 15 mins., but this was later corrected to 10 mins. 40 secs.

whilst Capt. Broad lapped steadily and cut the turning point with vertical banks as neat as anyone. Each competitor carried a passenger (except Finat on the Salmson-Caudron) and some parachutes. The useful load did not include fuel, oil or tools, but it included the pilot, passenger and ballast, the latter being considered as mail bags weighing 15 kilos each, and had to be accommodated in a space 0.45 m. (1.475 ft.) by 0.25 m. (0.82 ft.) by 0.4 m. (1.31 ft.). For ballast, bags of sand were chiefly used.

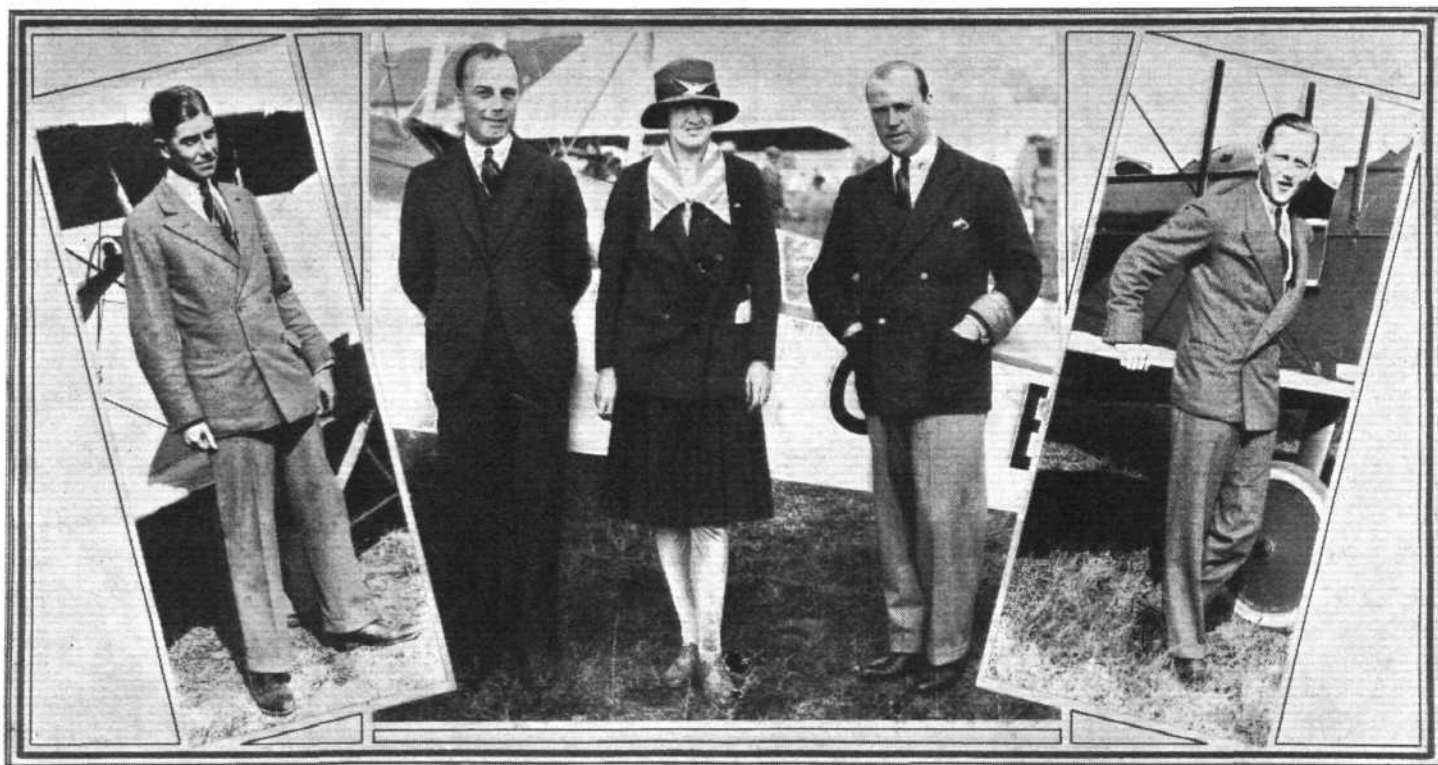
Efficiency Tests

The Efficiency Tests began on Wednesday. Competitors were required to fly 400 kms. (248.5 miles) without landing and without refuelling. Marks were awarded according

Efficiency Tests Results

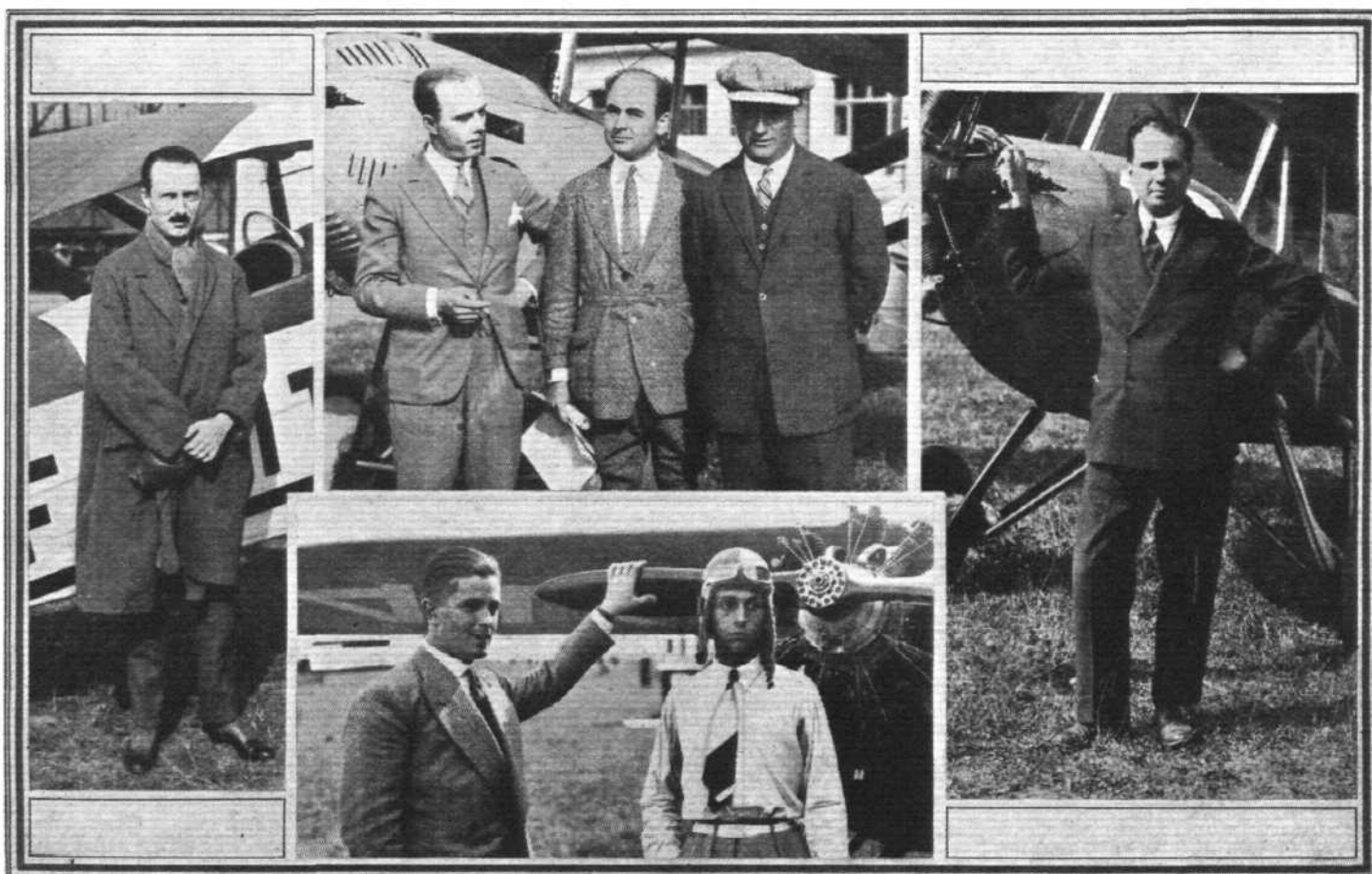
Competitor and Machine	Useful Load :		Speed :		Consumption		Points	Total Points
	kgs.	lbs.	kms.	miles	kgs.	lbs.		
Herr Lusser (Klemm)	245·800	(540·76)	112·640	(69·99)	25·700	(56·54)	1,077	1,271
Capt. Broad (Gipsy Moth)	214·800	(472·56)	142·940	(88·8)	33·100	(72·82)	927	1,161
Capt. Percival (Avro-Avian)	224·400	(493·68)	137·740	(85·5)	34·400	(75·68)	898	1,126
Lady Heath (Avro-Avian)	231·200	(508·64)	147·250	(91·5)	39·100	(86·02)	870	1,100
M. Fisbach (Albert)	108·700	(239·14)	125·790	(78·1)	21·750	(47·85)	628	833
M. Finat (Caudron)	204·000	(448·8)	117·020	(72·7)	32·800	(72·16)	727	814
M. Delmotte (Caudron)	214·200	(471·24)	130·600	(81·1)	48·650	(107·03)	575	720
M. Lemerre (Guerciais)	152·400	(335·28)	117·840	(73·2)	43·500	(95·7)	412	575
M. Massot (Caudron)	131·500	(289·3)	129·250	(80·3)	41·900	(92·1)	405	574

NOTE.—The total points given in this table represents the total points attained by each competitor for quality, climb, take-off, and efficiency tests, thus showing their positions on Sept. 12. The Reliability Trial should conclude after we go to Press, and that will reveal the final positions of the competitors for the Only meeting of 1928.



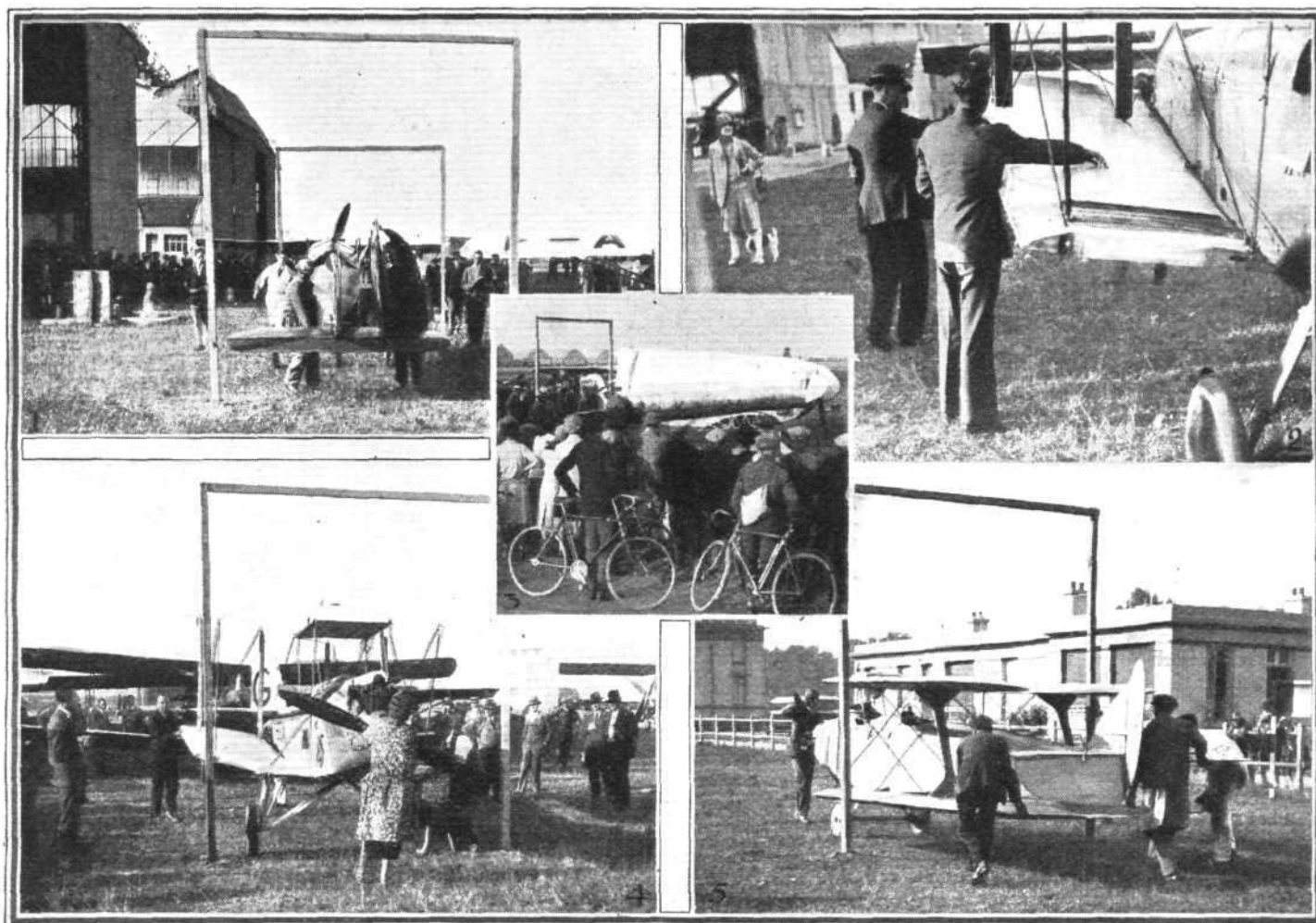
["FLIGHT" Photographs]

ENGLISH TEAM AT ORLY : (Centre, left to right)—Capt. E. W. Percival, Lady Heath and Capt. N. Stack, each of whom flew Avro "Avians" (A.D.C. "Cirrus Mark III" engines). Capt. Percival and Lady Heath are third and fourth respectively in the provisional placing of competitors. Capt. Stack started well but was eliminated owing to tank trouble. (left) : Flight-Lieut. N. Comper and (right) Capt. H. Broad, who stands a good chance of winning with the Gipsy-Moth.



["FLIGHT" Photographs]

FRENCH TEAM AT ORLY : (Left)—M. Maurice Finat, who competed with a Caudron monoplane (Salmson). (Top, left to right)—M. Vanlaere, M. Massot and M. Delmotte, the Caudron team representing the Caudron Company. (Bottom, left to right)—M. Magnard and M. Fisbach, who flew the Albert (Salmson) monoplane. (Right)—M. Lemerre, the pilot (who flew in a straw hat) of the Guerchais-Henriot (Anzani) cabin machine.



FOLDING TESTS AT ORLY : Our machines showed superiority in the folding tests at the French Light Plane Trials. (1) The Albert monoplane passing through the posts. (2) Capt. H. Broad was not quite broad enough for his task. Assisting him is Mr. St. John Plevins. (3) The Klemm-Daimler and (4) Lady Heath guides her Avro "Avian" safely through in the best time, with Capt. Percival (left) helping. (5) Flight-Lieut. "Nick" Comper carries on in spite of his disheartening troubles with the C.L.A.4

Reliability Trial

THIS reliability trial is the final event of the meeting. It began on September 14, and is due to finish on September 21. The conditions are that the competitors should fly eight stages in a tour of France, and complete each stage between 8 a.m. and 4 p.m. each day. The total distance to be flown is 2166 kms. There will be 60 points awarded for each stage covered, but failure to complete any one section will not eliminate a competitor from the trial. Points will only be lost for the stage not completed.

Course for Reliability Trial

September 14	.. Orly-Nancy (Essey), 284 km.;
" 15	.. Nancy-Lyon (Bron), 346 km.;
" 16	.. Lyon-Marseilles (Marignane), 257 km.;
" 17	.. Marseilles-Toulouse (Francazals), 313 km.;
" 18	.. Toulouse-Bordeaux (Marignac), 218 km.;
" 19	.. Bordeaux-Nantes (Le Bêle), 292 km.;
" 20	.. Nantes-Le Havre (Bléville), 278 km.;
" 21	.. Le Havre-Paris (Le Bourget), 178 km.

The order of starting and order of arrival for the second stage, that from Nancy to Lyon (346 km.), was as follows:—M. Rouye (Caudron); Herr Lusser (Klemm); Capt. Percival (Avro "Avian"); Lady Heath (Avro "Avian"); Capt. Broad (Gipsy Moth) and M. Lemerre (Guerchais-Henriot). At Marseilles the order of arrival was: Lady Heath; Capt. Percival; M. Rouye; Herr Lusser; M. Lemerre and Capt. Broad.

Herr Lusser on the Klemm (Salmson) left Marseilles or Toulouse, but did not arrive.

The latest position of the competitors as we go to press is:—

Herr Lusser, 1,451 points; Capt. Broad, 1,401 points; Capt. Percival, 1,366 points; Lady Heath, 1,340 points; M. Rouye, 1,054 points; and M. Lemerre, 815 points.



[“FLIGHT” Photographs]

GERMAN TEAM AT ORLY : (Left to Right)—Herr R. Lusser and Herr Aichele, who represented Germany, with Klemm monoplanes. The former has the highest number of points at the meeting at present, leading Capt. H. Broad by 50. His machine has the Salmson 40 h.p. Aichele failed in the climbing test owing to plug trouble.

THE START OF A GREAT ADVENTURE

The Amsterdam-Batavia Air Mail Service

WHAT promises to be one of the most impressive demonstrations of trans-Continental flying was inaugurated on Thursday of last week (September 13) by Lieut. G. A. Koppen, the well-known Dutch pilot.

Promptly at 6 a.m. his machine, an Armstrong Siddeley three "Lynx" engined Fokker VII-3m took the air on the first stage of the 14,000 km. (8,750 miles) air mail journey from Amsterdam to Batavia. It carried 2,251 registered letters and 18,631 ordinary letters. This journey is to be

which are the large diameter landing wheel brakes. These brakes are of the enclosed expanding type similar in design to those used on motor cars. The brake lever is compensated and located between the two pilots and is connected to the tail skid to enable the machine to be turned quickly on the ground by braking the wheel on the inside of the turn. It is said also that its application reduces the run of the machine on the ground from 250 to 100 yards, and that the operation is so gradual that there is no chance of the machine pitching.



THE AMSTERDAM-BATAVIA AIR MAIL : Five Armstrong Siddeley "Lynx" engined Fokker VII-3m monoplanes lined up on Schiphol aerodrome, Amsterdam, for inspection by Dutch Government officials prior to their departure for Batavia.

made in twelve stages, the stopping places and intermediate distances being as follows :—

1st stage	..	..	Budapest	..	875 miles.
2nd	..	..	Constantinople	..	875 "
3rd	..	..	Baghdad	..	1000 "
4th	..	..	Bender Abbas	..	906 "
5th	..	..	Karachi	..	750 "
6th	..	..	Allahabad	..	875 "
7th	..	..	Calcutta	..	469 "
8th	..	..	Rangoon	..	937 "
9th	..	..	Bankok	..	368 "
10th	..	..	Medan	..	844 "
11th	..	..	Palembang	..	619 "
12th	..	..	Batavia	..	303 "

The other machines are scheduled to leave at intervals of one week and having arrived at Batavia will undertake local postal services on behalf of the I.L.M. (Indische, Luchtvaart, Maatschappij) a concern allied with the K.L.M. Royal Dutch Air Lines. Next year the Amsterdam-India-Batavia service will be still further developed.

The Fokker machines, which carry two pilots and an engineer, possess certain new features, the most interesting of

The wheels are shod with Goodrich tyres and run on roller bearings. The cabin is ventilated by a new design of Louvre controlled from the interior.

The Armstrong Siddeley engines, with which the machines are equipped, are the standard seven-cylinder air-cooled radial "Lynx"-type which develop 200-225 h.p., the same type of engine being used by Lieut. Koppen on his experimental record breaking Amsterdam to Batavia and back flight last year, and its success on that occasion largely accounting for its selection for the new service.

The latest engines are fitted with metal propellers, the wing engines using two blades and the central engine three. A top speed of approximately 120 m.p.h., a cruising speed of 104 m.p.h., and a landing speed of 61 m.p.h. indicate the capabilities of the machines.

On the afternoon preceding the send-off of the first machine an official reception was held by the K.L.M. at Schiphol Aerodrome near Amsterdam. The aeroplanes were lined up in front of the enclosure and a large number of guests of the K.L.M. besides large crowds of the public inspected them. Most of the afternoon was occupied in broadcasting the speeches of Ministers and important men in the Dutch financial and flying world.

Air Mail in the Yukon

MESSRS. GREENFIELD AND PICKERING, who, for many years, have held the mail-carrying contract between Whitehorse and Dawson, Yukon Territory, have decided to adopt aeroplane services during the coming winter. After passing through many stages in the development of transportation in the far north, including dog sleds, horse-drawn stages, motor trucks and caterpillar tractors, this pioneer firm has purchased two 'planes, a Fairchild all-purpose monoplane and a De Havilland "Moth." A feature of the latter is the

slotted-wing equipment, the first 'plane on the coast to have this safety device. Both 'planes will be fitted with skis and will have pontoon and wheel landing gear as well. The Fairchild 'plane will be used for express and freight, and for occasional passenger carrying as well. It will be used also in carrying freight for the Treadwell Yukon Mines Company, which is engaged in mining operations near Keno City. The distance between Dawson and Whitehorse by overland trail is, approximately, 362 miles, and from the junction to Keno City is 72 miles.

Aviation in the Dominions



Dominion of Canada

AVIATION IN CANADA

By MAJOR F. A. DE V. ROBERTSON, V.D.

H.E. Lord
Willingdon,
G.C.S.I.,
G.C.M.G.,
G.C.I.E., G.B.E.,
Governor-
General.



H.E. Viscountess
Willingdon,
C.I., D.B.E.

IN our issue of May 17, 1928, we published a special section devoted to Aviation in Australia. Intended as the first of a series of special articles on the subject of aviation in the British Dominions, our Australia number met with a very hearty reception from our readers, and we can only hope that the special Canadian section, published this week, will prove equally popular.

Maj. F. A. de V. Robertson has managed to instil in his article on Aviation in Canada much of the spirit of romance and discovery which one associates with the history of that great Dominion; and, as he points out, the development of flying in Canada has progressed along entirely original and unorthodox lines, which have no parallel in any other country in the world. Yet there are, perhaps, few countries in which aviation has been taken up and made to serve the needs of man with greater success and to better purpose than in Canada.

As in the case of our Australian number, the present Canadian Section is greatly enhanced in value by the inclusion of a large number of photographs. For the loan of these, which give a splendid idea of the Canadian scenery, etc., we are greatly indebted to the London office of the High Commissioner for Canada, from whom we have received a great deal of assistance. The aerial views were all taken by the personnel of the Royal Canadian Air Force, and we think it will be agreed that the quality of these aerial views is very high indeed, and a credit to the R.C.A.F.—Ed.

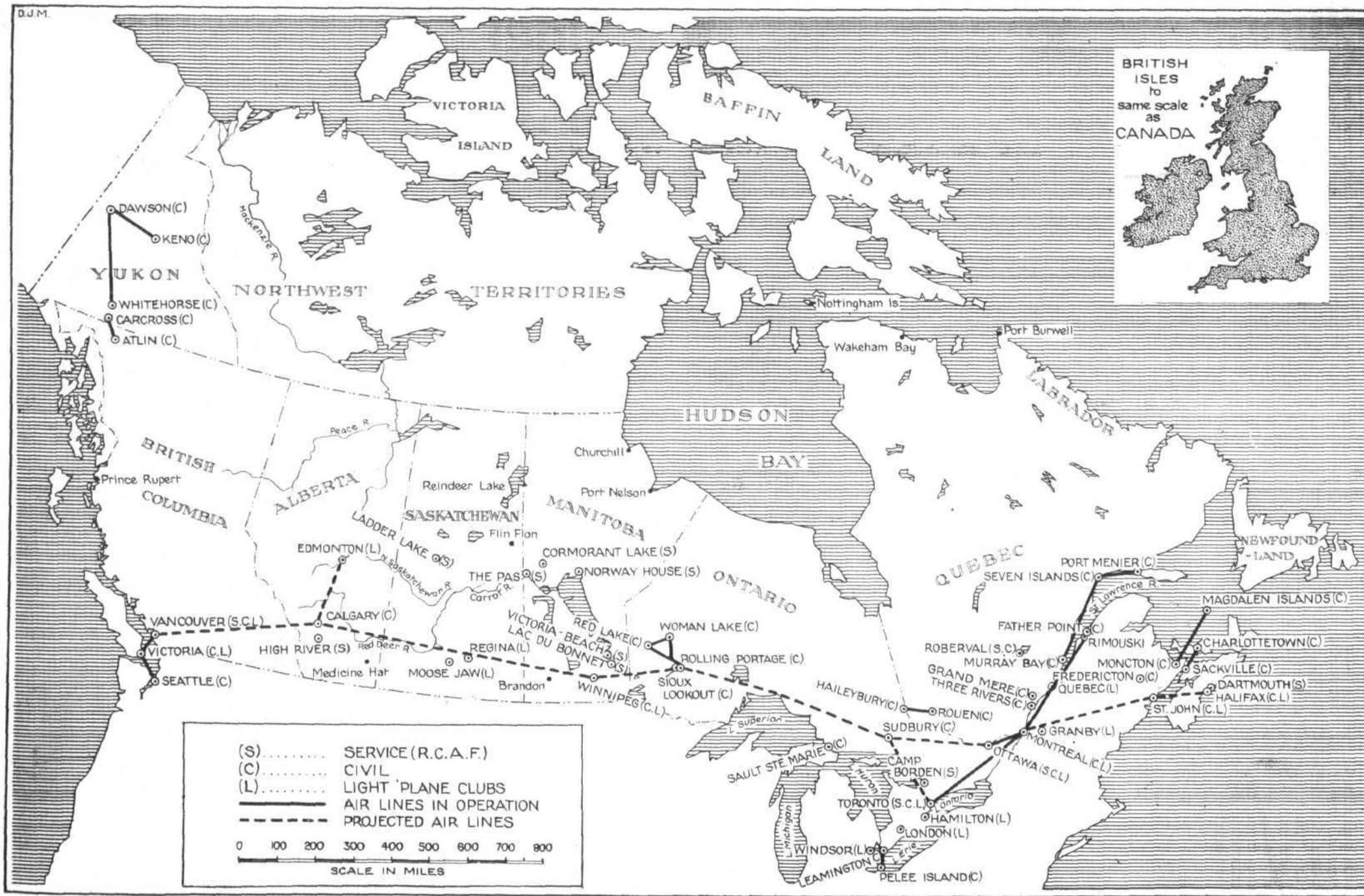
THE history of flying in Canada is quite unique. It might be described as a mixture of socialism and natural development. The Dominion Government has led the way, but when it has not taken action itself it has granted no subsidies to private operators. It has initiated no mail and transport services by air. There is no clear-cut line between the development of the Royal Canadian Air Force and that of civil flying. Their fortunes have been bound up together; though now they show a tendency to diverge. So far, aircraft have been used less in Canada for the usual purpose for which other countries have used it, namely for rapid transport on regular lines; and more for other varieties of purposes which have been less sought after elsewhere. In fact, in the first few years after the Armistice, it may be said that the quality in aircraft which was least esteemed in Canada was its speed; that which was held in the highest regard was its long range of vision. Another point of interesting peculiarity was that whereas most



The Rt. Hon. W. L. Mackenzie King,
C.M.G., Dominion Prime Minister

other countries made a start with landplanes, in Canada the great majority of the early work was done with boat seaplanes. In fact, Canada showed an originality of outlook not to be found anywhere else in the world.

The unusual course of development of flying in Canada was not due to any desire for eccentricity. It was the outcome of a just appreciation of the conditions, needs, and capacity of the country. It was eminently sane. The Dominion Government never denied that air lines might be advantageous to the country, but it realised that in the early days there was no popular demand for them and that the country could well get on without them. The most productive and populous belt of Canada runs east and west between the Atlantic and the Pacific, and the main demands of this belt are catered for by an excellent system of railways. In this respect the conditions were utterly unlike those in Australia. Other countries started air lines, subsidised by the Government,



AVIATION IN CANADA: Map of Canada showing the location of the principal Air Routes, Service Air Stations, Light 'Plane Clubs, etc.

and some started them prematurely—that is to say before the public mind was ready for them. Consequently they were of very small commercial value, though the expenditure was justified on the grounds that it kept alive the flying movement and the aircraft industry, and it provided a full-scale experiment by which it was gradually learnt how an air line ought to be managed. On the whole, these reasons, as applied to France, Great Britain and Germany, may be passed as adequate; but they did not apply to Canada. There was at first no aircraft industry

famous. All these war pilots returned to Canada anxious to keep on flying. Aeroplanes were cheap, and the public was interested in the novelty. A number of "joy-riding" companies were formed, but once the first interest and curiosity were satisfied the demand waned, and most of the companies had to go out of business. The years of depression followed, but from the flying point of view they were not so acute in Canada as elsewhere. There was, for one thing, a shorter period in which flying was uncontrolled. Canada led the way in regard to regulation of air traffic, and was the first

Quebec.



there to be protected, and there was no compelling need for the Dominion to spend public money on such an experiment. The Government decided that organised air routes were for the time being a luxury which the country could not afford. Yet it must have cost some searchings of heart and some stern self-repression to arrive at this conclusion and put it into practice. Canadian pilots had joined the Royal Air Force in large numbers and had played an especially gallant and distinguished part in the fighting in France. Wherever the initials "V.C." are known and understood the names of Wing Commander W. G. Barker and Col. W. A. Bishop are

country to enact a complete set of air regulations, namely in 1920, and these proved satisfactory from the first in main principles, though details were amended as experience demanded.

There never was in Canada a period when the Government did nothing to keep civil flying alive, while no one else could afford to do anything. Aircraft and equipment to the value of about \$5,000,000 had been presented to the Dominion by the Government of Great Britain and a number of flying boats used by the Royal Canadian Naval Air Service were available. Even before the Armistice had been signed

Riviere des
Prairies,
Quebec.



Canadians had perceived that aircraft offered a new and vastly improved method of patrolling the forest to observe outbreaks of fire, and no time was lost in making use of it. An Air Board was formed and in 1919 it was authorised to institute a central civil flying service to supply flying to any other service which required it. This was the novel and unique idea round which practically all flying in Canada has grown up.

The Forest Fire Patrols

Canada is the Empire's great timber storehouse, and has the second largest forest area in the world, namely, 1,226,720 square miles, of which 441,960 square miles carries useful timber. Only the United States possesses a larger forest area, while Russia comes third. In 1927 the net value of the forest products of Canada amounted to \$475,000,000. The forests rank first among the natural resources of the country, and provide Canada's second greatest industry. The lumber, pulp and paper industries give employment to over 65,000 hands. In the short, but in some parts fierce, summer in Canada forest fires are numerous, and they have often been most destructive. Often a fire has burnt for several days and destroyed acres of valuable timber before it has even been discovered. Previous to the coming of aircraft, the system of guarding against forest fires was primitive, yet probably the only possible one. It must be remembered that to the north of the strip of country served by the railways, the normal means of transport and travel was by canoe in summer and by dog team in winter. Where commanding heights could be found, permanent watch posts were built, connected by telephone to the local head-

would enable him to detect the smoke. The aeroplane at once gave him eyes. Not only was the smoke detected easily from a great distance, but the aeroplane could speedily reconnoitre the extent of the outbreak and bring in the news, detailed news, with a speed previously inconceivable. The use of aircraft for forest patrols was first developed in northern Manitoba, Ontario, and Quebec, and thence spread westward to Saskatchewan and later to Alberta. At the time when aircraft were first tested in Alberta not a single lookout station had been established. Methods of communication and transport had only just reached the stage where use could be made of lookout reports. A heavy capital expenditure on elaborating this system was imminent. But aircraft were tried, and the plans for a lookout system were abandoned, to the great benefit of the public purse.

It may be interesting to recount the history of one fire at the time when aircraft had only recently found their way into Alberta. The air station was at High River, on the eastern side of the Rockies. It was equipped with D.H.4 landplanes with Eagle VIII engines. On the morning of August 28, 1921, one of the D.H.4's out on patrol spotted a large fire on the western slope of the range, in British Columbia. It had been burning for several days, and the amount of timber destroyed was already serious. But the worst that could happen would be for the fire to cross the summit of the Rockies range and descend on the eastern side into Alberta, where it would probably invade the very valuable Crowsnest Forest Reserve. This catastrophe at least it was hoped to avert. Some of the passes were timbered, and these seemed to constitute the greatest danger. Crews



Part of
Waterfront,
Montreal

quarters. The patrols went out in canoes, a ranger and assistant patrolling over water ways which were sometimes from 200 to 300 miles long. In forests it is never possible to see far in any direction from a canoe, especially if the banks of the river are high. Sometimes the patrol would pass quite close to a fire, and, unless the smoke happened to be blown directly on to them, would never know of its existence. Incidentally it was by no means a cheap matter to equip a canoe party properly for a trip which would last for weeks. As for preventing fires which originate in the carelessness of camping parties, the ranger could never be expected to protect adequately the enormous territory under his charge. He has been described as, at the very best, only a moral agent for law and order amongst the north land travellers. When it came to actual control of fires which had been detected, the system in vogue must have been almost maddening. Starting from the canoe, the ranger had to follow the smoke until he had actually located the fire, and then had to form some idea of its extent. The next step was to get to some telephone and send information and a request for fire-fighters with equipment. It can very seldom have been a speedy business to get the fighters actually to the spot, and even when they had arrived they must often have been ignorant of what the fire was actually doing, and unable to perceive the best steps for combating it.

To the forest officials in the great forest which forms the northern part of the Prairie Provinces (Manitoba, Saskatchewan and Alberta) the aeroplane came as a positive godsend. No longer did the patrol grope blindly on the ground or along the river, hoping that good luck

of men were hastily recruited from mills and mining works, and stationed in the best positions to prevent the fire from crossing into Alberta. Day by day the D.H.4's reconnoitred the fire and brought invaluable information of its progress to the Forest Supervisor. On August 30 a ranger was flown over the whole area, and it seemed to him that the fire had turned in another direction and would not cross the range. That very evening, however, a strong west wind blew up and carried embers across four miles of bare mountain peaks. They started innumerable fires on the Alberta side. For twelve days after its discovery this fire raged, and throughout the whole period the aeroplanes reported its doings and tendencies. Without this information the supervisor must have been well-nigh helpless. Finally, a heavy fall of rain and snow on September 8 checked the flames, and then the foresters were able to regain control. But without the help they had received from the air the damage done must have been far greater than it actually was. Then the organisation was in its infancy. Now it is much more elaborate and effective.

In those days, the High River station, some 40 miles south of Calgary, in Alberta, was the only one to use landplanes. In all others, seaplanes were the normal aircraft in use, and flying-boats in particular. Great parts of Ontario are studded with lakes. Manitoba appears to have almost more lake area than land area; while the northern parts of Saskatchewan are also generously watered. Where the forests stretch across hills with no possible landing ground for many miles, a single-engined landplane could only operate at great risk. But with lakes everywhere, varying in size from the vast Lake Winnipeg down to useful mountain tarns, a flying-boat could

**Parliament
Buildings,
Winnipeg,
Manitoba.**



always get down safely if its engine failed. The other stations, in the early years, were :—

British Columbia, Vancouver, station at Jericho Beach, English Bay.

Manitoba, Winnipeg, station at Victoria Beach on southern shore of Lake Winnipeg, with subsidiary bases at Norway House, on the north of the lake, and Le Pas, on the Saskatchewan river.

Ontario, Ottawa, station at Victoria Island in winter, and Rockcliffe in summer.

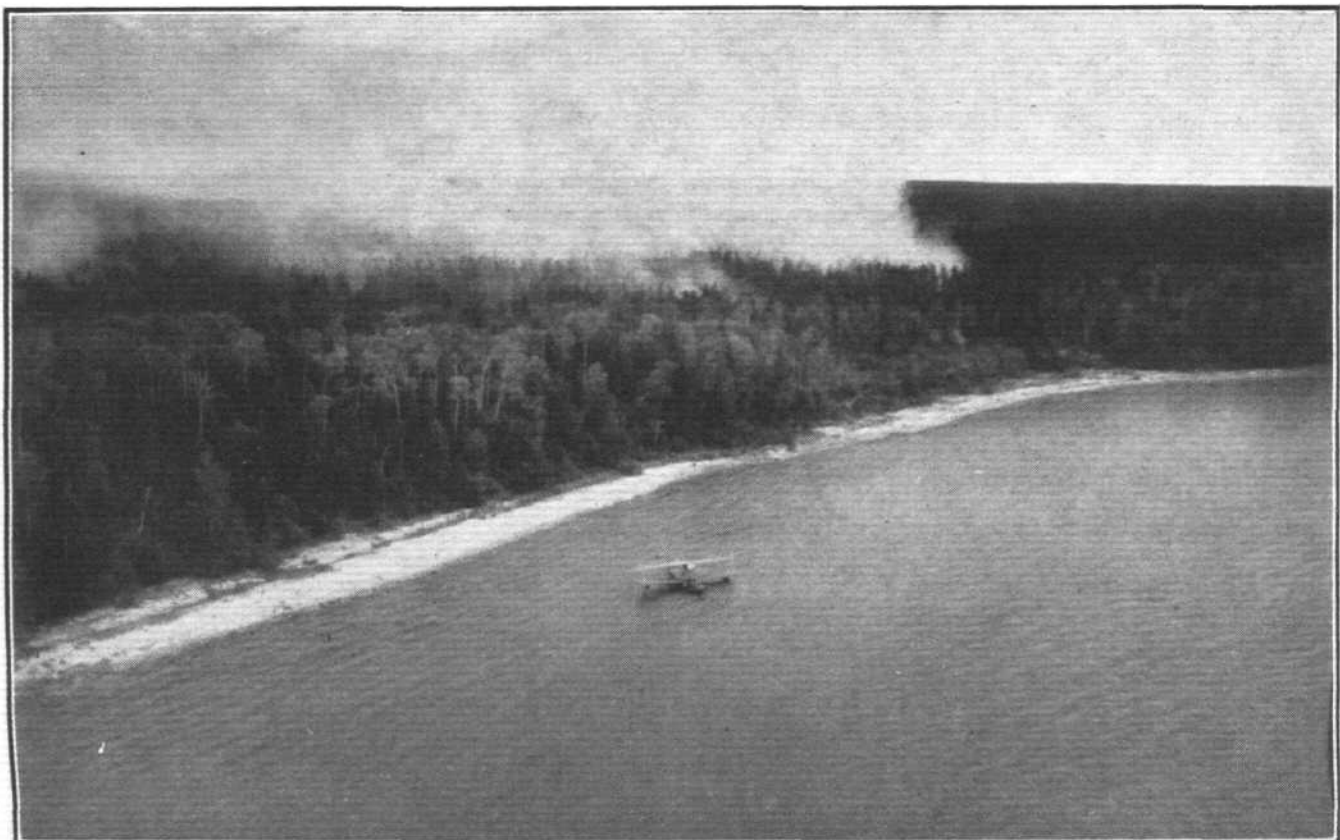
Nova Scotia, Dartmouth.

Quebec, Robertval.

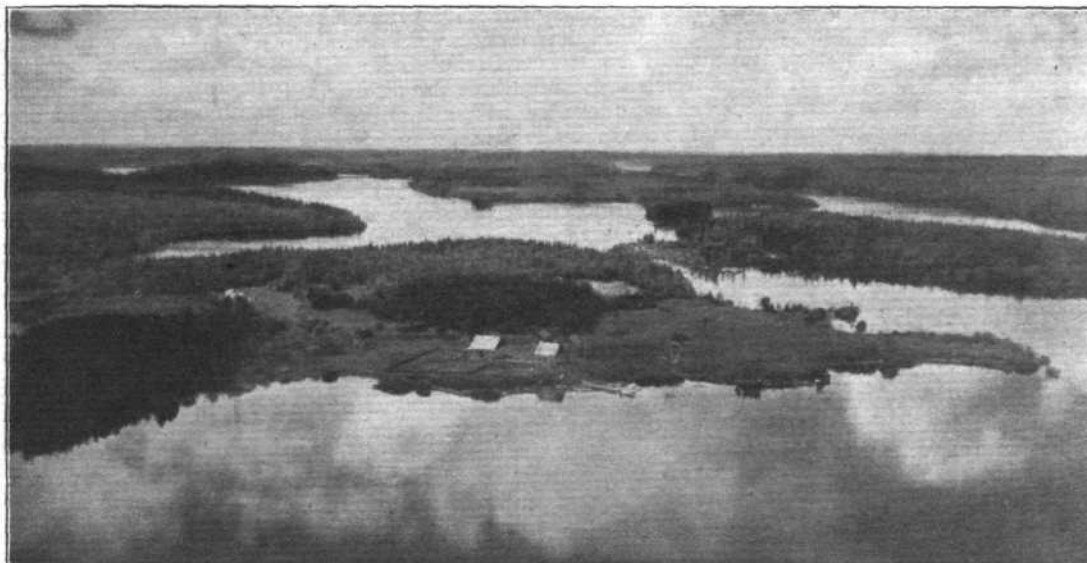
These were all seaplane stations, and in the early days, the American flying-boat H.S.2.L. was largely in use by them. But even in 1922 that type was found inefficient in many ways. The same was the case with the F 3 boat.

The growth of aircraft in popularity is interesting to trace in the annual reports on civil flying in Canada. On the one hand there was a body of air enthusiasts ; on the other hand, officials who had to be converted, and seemed dubious as to

whether aircraft was not just an ingenious toy. Intensity of enthusiasm over a novelty sometimes in itself creates suspicion —most people are apt to shudder when the enthusiast mounts his hobby horse. But aircraft themselves proved the best apostles, and conversion of the doubters was rapid. In 1922, the Forest authorities of the Dominion laid it down that :—
“ The essential justification of the use of aircraft in forestry work lies not in any possible economy which may be effected, but in securing a greater degree of efficiency than can be obtained in any other manner. In fire protection, nothing short of an organisation adequate for all emergencies is worth while as a permanent proposition. The reason for this is that inefficient fire protection is no fire protection at all when it is most needed. A properly functioning organisation is therefore not an ideal, but a necessity. . . . Any method, therefore, within the economic means of this country, which can be utilised to conserve our forest resources from destruction, should and must be adopted. Under the conditions existing in the great northern forest, which forms the northern parts of the Prairie Provinces, the use of aircraft seems to



AERIAL FIRE FIGHTING : Lake Winnipeg, Manitoba.



Hudson Bay Post,
Island Lake,
Manitoba.

offer the only possible and practicable solution of the problem of fire protection. These forest areas are, in general, uninhabited, isolated from settlement, inaccessible, and at the same time subject to dangerous fire hazard. Distances to be traversed are enormous, no lookout system is possible of development, and in addition, no labour supply is available for fire-fighting."

■ Once aircraft had been tried as forest fire patrols, there was no looking back. The system has now been firmly established for years past, and extensions and elaborations have been made. Now 61,012,911 acres of forest land are protected by aircraft. The number of stations has naturally increased, and the system has grown more complex. Different types of aircraft are now used for fire detection and for fire suppression. The fire detection aircraft used by the Dominion Government are the Avro-Lynx (both landplane and seaplane) carrying pilot and passenger, and the Vickers Vedette boat (Lynx) carrying pilot and two passengers. Moths have recently been added to the detection fleet. Detection aircraft are now always fitted with wireless, and by this means still more time is saved in reporting the position and extent of a fire which has been discovered. Previously, of course, the aeroplane had to reconnoitre the outbreak and then fly back to its base and report—which was then an immense saving of time on the old canoe methods. The fire suppression types

in use are the Vedette, the Viking-Eagle 9 (pilot and three passengers), and the Vickers Varuna with twin Lynxes which carries pilot and six passengers. These boats hurry parties of fire-fighters up to the neighbourhood of the outbreak and land with them on the nearest suitable lake. The official in charge is then flown over the fire so as to be able to observe its extent and direction of travel, from which he can form his plan of campaign. The next task for the boats is to bring up supplies, both fire-fighting appliances and also tents and food for the men. The whole organisation is like a magical transformation from the old methods. It is not in the least surprising to read that last year there were fewer forest fires in Canada than ever before.

In 1927 the main forest fire protection flying was carried out in Alberta and Manitoba, from the centres at High River and Winnipeg. The actual number of flying hours are but a fallacious guide to the utility of the service, for weather which is unfavourable for flying also reduces the risk of fires in the forests. Last year a total of 193 hours flying on forestry duty was carried out from the High River station over the Crowsnest and Bow River reserves, but no fires occurred during the season. This was not entirely due to the weather. It has been found that the moral effect of the patrols is very great. Every day the aeroplanes are seen flying overhead, and they act as a constant reminder to the trappers, the

Kettle Rapids,
Nelson River,
Hudson Bay Rail-
way, Manitoba.



tourists, and the residents, that the fire menace is always with them. This reminder has had the effect of inducing greater care in preventing camp fires, etc., from setting the surrounding forest aflame.

The Winnipeg station operated five summer bases last year. These were: 1. Lac du Ponnet, 70 miles north-east of Winnipeg, for flying over the forests between Lake Winnipeg and the provincial boundary as far north as the Berens river. The flying time was 371 hours. 2. Norway House, on Forestry Island in the Nelson river, about 35 miles from Lake Winnipeg to the north-east. Its flying time was 327 hours. 3. Cormorant Lake, on the Hudson Bay railway to the north of Lake Winnipeg. Its flying time was 322 hours. 4. Ladder Lake, 100 miles north-west of Prince Albert. Its flying time was 293 hours. 5. Winnipegosis Detachment on an island in the lake of that name. It put in 29 hours, but the fire hazard was found to be low, so the aircraft were transferred to Ladder Lake. During the season 106 fires were detected in this province and suppression action was taken as required.

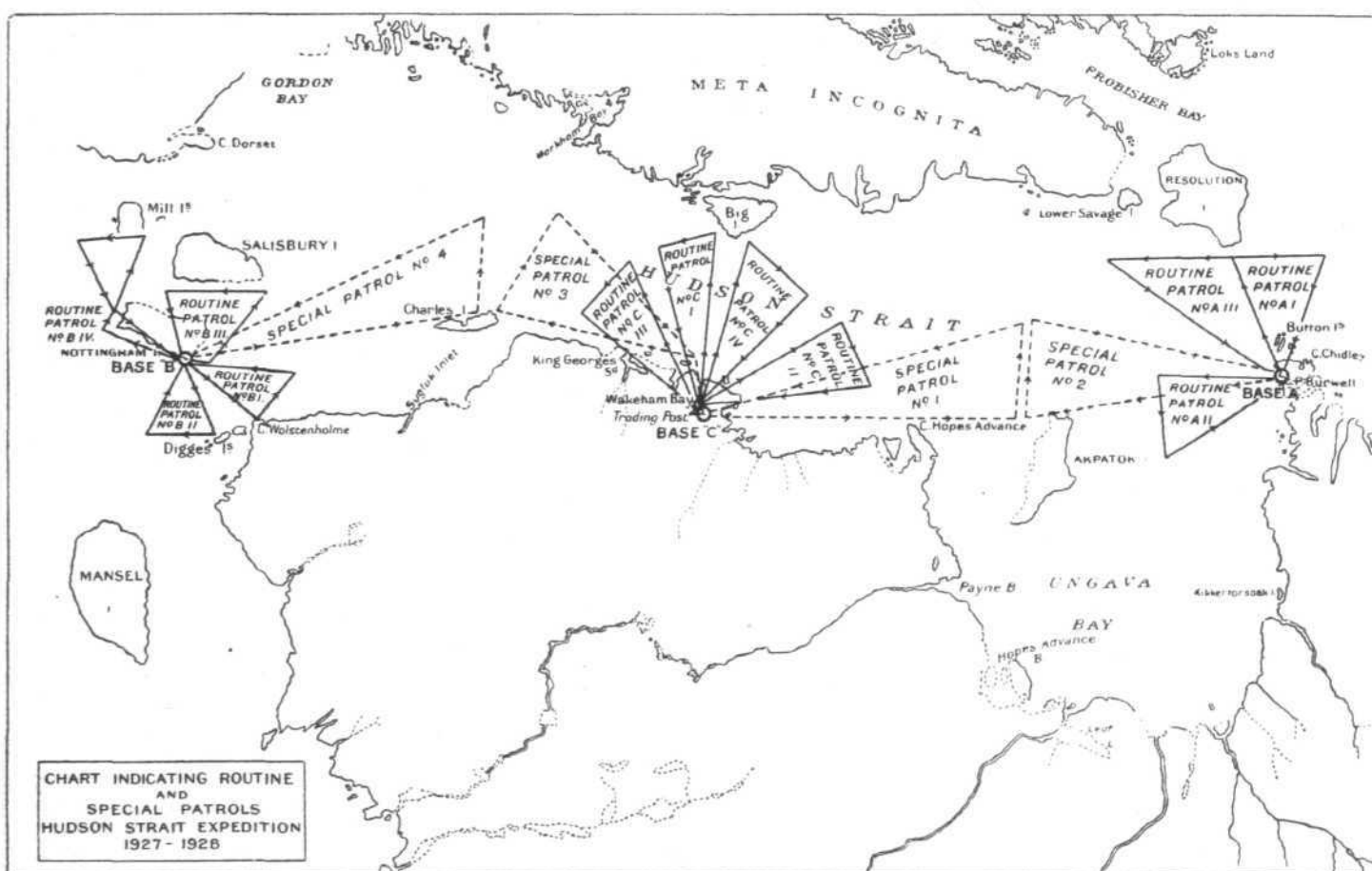
Organisation

The forest fire work was at first the most important work undertaken by aircraft in Canada, and therefore it has

This dual administration of the same set of pilots was found to have disadvantages. Both the C.A.F. and the Civil Operations Branch had establishments at Camp Borden. The shops and stores were on a civil basis, while the training was under Air Force discipline and direction. It was also found that the Air Force training and administration could not be carried out with maximum efficiency by a non-permanent staff.

In June, 1922, a change was made. The Director of the C.A.F. was made responsible for Air Force training and organisation as well as Civil Government operations. The pilots and mechanics engaged in the forest fire patrols and work for other departments were no longer regarded as civil servants; they thenceforth carried out their civil work in their capacity as officers and airmen of the Air Force.

A parallel to this arrangement would be difficult to find in modern times. It was as if all public works in Great Britain were carried out by the Royal Engineers. The system has, however, proved elastic. So far from stifling private enterprise, as some may have feared that it might do, it actually kept flying alive in Canada when nothing else could have done so. It provided proof, first to all official circles, and



been dealt with first. Before proceeding to deal with other flying activities, some account should be given of the flying organisation and its growth.

After the war the Canadian Air Force (now the Royal Canadian Air Force) was organised on a militia basis. Camp Borden was the air force training base. The idea of a permanent full-time air force engaged in training for war was not approved. On the other hand, no subsidies were paid to any commercial flying company. Therefore an ingenious compromise was evolved, whereby the officers of the air force when not undergoing training should be employed as civil servants in the Civil Operations Branch under the Air Board to provide flying services to any government department which required it. When the pilots went to Camp Borden for training or refresher courses, they were granted leave from their civil duties. In this arrangement, as in others, the history of flying in Canada is unique.

The Air Board Act was passed in 1919, and the first system was that the Board's functions were performed by three directorates: (1) the control of civil aviation, dealing with the air regulations and all which concerned them; (2) the conduct of Civil Government operations, e.g., forest fire protection; and (3) the administration of the Canadian Air Force.

then to the public in general, that aircraft could perform wonderful services to the public. It bridged over the period of depression and suspicion. Finally, as the time grew ripe for civil commercial bodies to take over the work, the Royal Canadian Air Force has been ready to withdraw in their favour.

The present position is that in the Prairie Provinces—namely, Manitoba, Saskatchewan, and Alberta—which are naturally the least developed, the natural resources of the forests, etc., are still protected by the Dominion Government through the Royal Canadian Air Force. Ontario, Quebec, and British Columbia all pay for their own provincial flying services. The two latter used to employ the R.C.A.F. to carry out most of their flying work on a repayment basis. Ontario maintains its own provincial flying service. All three contract out some of the work to civil firms. The situation created by the Government's demand for flying services was naturally an incentive which brought commercial flying companies into existence. The success of the Government civil operations likewise encouraged lumber firms and pulp firms to make their own arrangements for air surveys and air supply services. They sometimes established their own flying branches, but more usually contracted out the work to an established flying concern. Thus a natural and



Vancouver: West
End, and Stanley
Park.

healthy growth is the result of the lead given by the Dominion Government. Last year there were 20 civil concerns operating in Canada with more or less success.

Work for Other Government Departments

The work of the Civil Operations Branch was from the first based on the needs of the Forest service. The demands of that service were constant, and the resources which they dealt with were of prime importance and in urgent need of protection from the air. But the aeroplanes allotted for forest patrol were always ready to put themselves at the service of officials in other Government departments. The other departments do not seem to have clamoured for the use

of aircraft quite so plainly and so loudly as the forest officers clamoured. One might almost say that there was a period in which the other officials needed to be converted to the use of aircraft. Conversion, however, was not a long or difficult task. Conservatism in the worst sense of the word does not flourish overmuch in Canada. The reports of officials who had just made their first flight are refreshing reading. They are full of unbounded delight at the solution of difficulties and the saving of time and money; and they invariably express the opinion that their own particular service cannot and must not dispense with the invaluable aid of the aeroplane in the future.

One should try to picture the old state of affairs. It is a

Skeena River
Valley, British
Columbia.



picture of man, not primitive, savage man, but highly civilized and technical man, struggling with the immensity of Nature. We picture him crawling painfully over the surface of the land, climbing the mountains and threading his way through the forests, on foot, on horseback, in canoes,

the Public Works, all had the same great need—to see beyond the horizon. Then the aeroplane appeared, and the story of the flying horse and the magic carpet came true. Man was given eyes. Three-quarters of his difficulties vanished in a flash. No longer did he grope in ignorance.

Calgary, Alberta.



wandering among flooded tracts, building towers on the peaks, in the constant endeavour to see what lies beyond his horizon. The summer is short and he cannot get much work done in it. He grudges every day's delay. Yet his journey may take him in a direction which proves in the end to be useless, and the work of the summer and all the money spent on the expedition is wasted. Vast tracts of Canada were not mapped,

He was endowed with knowledge, and he could frame his plans accordingly.

As an illustration we may quote the case of an engineer of the Reclamation service who some years ago was engaged in a survey of the Carrot river triangle in western Manitoba, for a drainage project which involved the reclamation of some 900,000 acres of land. He was working on foot in



Edmonton, showing High Level Bridge and Parliament Buildings, Alberta.

or were very inaccurately mapped. Not knowing the lie and the contours of a mountainous forest, how could anyone tell the best place to open up a trail? The only thing to do was to start one on chance, and if it proved to lead in an undesirable direction, to abandon it and start another. The officials of the Topographical Survey, the Geological Survey, the Water Power branch, the National Parks branch, the Northwest Territories and Yukon branch, the Railways and Canals,

summer, and excessive floods and numerous swamps prevented him from getting to a large part of his area. In this quandary he found himself at The Pas, where the railway to Port Nelson on Hudson's Bay crosses the Saskatchewan river. While he was there, one day a flying-boat from Victoria Beach arrived, carrying a pilot and the forest inspector, who were engaged on a special demonstration flight round Lake Winnipeg and district. The engineer must have felt

SEPTEMBER 20, 1928

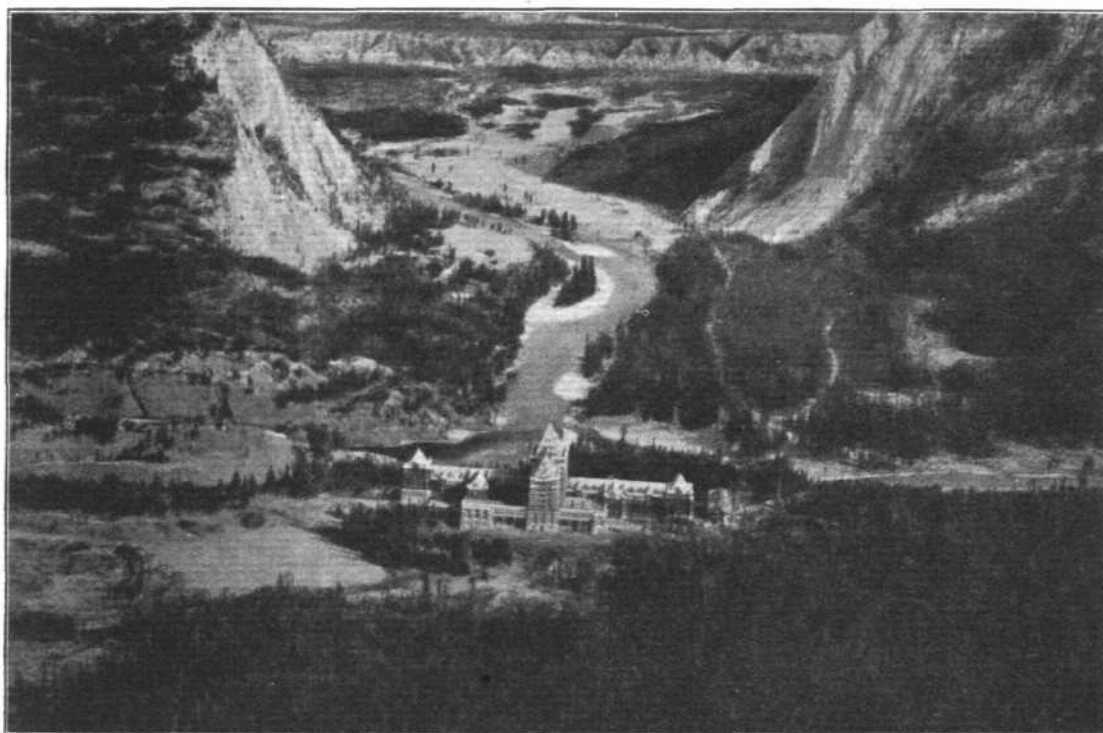


that help had indeed been sent to him from above. He begged for a flight. There was not very much time available, as the forest inspector was not stopping long, and the Commissioner for Northern Manitoba was also there and demanding to see what his outer territory looked like. But the engineer was given a couple of hours one afternoon, between tea and dinner. He declared that in those two hours he learnt more about his problem than he could have discovered in a two months' journey on foot. He flew across the Saskeram lake and followed the Saskatchewan river to within 26 miles of the Sipanok Channel. He could see the various drainage channels in the interior quite distinctly, and was able to form opinions as to where he should run his interior traverse lines, and where such lines would not be necessary. No doubt that engineer enjoyed his dinner that evening at The Pas with an appetite unknown for some time past.

Similarly a geological officer of northern Manitoba on the search for deposits and strata of economic value, was flown over a tract of country round lake St. Joseph. He was able to see the extent of a granite area, which was not of value to him, and so could decide not to progress farther in that direction, which he might otherwise have done. On the same flight it was observed that the maps of that area were extremely inaccurate. The lakes not shown on any map were almost too many to count, and some of them were very large.

and dropped messages to them. On the scenery he waxed positively poetical in his report. The views he found "absolutely indescribable—they combine the beautiful with the awe-inspiring and grand." He was particularly struck by a newly discovered and very lovely glacial lake at an altitude of 8,000 ft. It was beautifully coloured and had an enormous glacier, whose snout ran into Lake Maligne.

One Geodetic Survey officer in British Columbia grew quite pathetic in his expression of gratitude to the Air Board for their help in the solution of his special difficulties, that help taking the form of the loan of a seaplane from the Vancouver station. His report is well worth quoting at some length. "It has been one of the outstanding problems," he wrote, "to find means of viewing the country so as to enable the engineer to identify and determine the position of the points constituting his triangulation scheme, and to assure himself of the intervisibility, accessibility, and nature of such points. To minimise as far as possible the fatigue and loss of valuable time in long excursions and *détours* over the country, leading sometimes into almost impassable woods, extension ladders and temporarily erected wooden towers had to be resorted to. Even these methods, as can well be imagined, failed many times in obtaining the desired results, and were also the means of loss of valuable time. One of the bugbears of the old survey was the feeling of uncertainty in the scheme finally



Banff Springs
Hotel,
Alberta.

Doubtless by this time the maps of that area are, thanks to the aerial camera, very accurate indeed.

Canada has taken the long view in setting aside certain large tracts of beautiful country as national parks. One of the largest of these is Jasper Park in the Rockies, near the Yellowhead Pass, where the railway from Edmonton crosses over from Alberta into British Columbia. Probably by now it has been mapped also, but in the early days much of it was unexplored. Very substantial mountains in it had not even been named. These parks are in the charge of a special Government department. It used not to be uncommon for the Superintendent of Jasper Park to spend two months on a single journey through part of it. Hearing of the doings at the station of High River, the Superintendent asked for the use of an aeroplane, and a D.H.4 was sent up to him. He made three flights over the park, chiefly with the object of inspecting trails and marking out the best lines for new ones. From the air he was able to see that the Rocky River valley up to and including the pass was not nearly so difficult as he had imagined for running a trail. In another place he found that the best thing to do would be to abandon the existing trail and open up another through a neighbouring valley. He observed several promising grazing grounds in valleys. He discovered and marked on his map several unknown lakes and river valleys. He obtained valuable information as to the extent and character of the timber in various parts of the park, and he was able to formulate fire-protection schemes. He passed several working parties who were two days' journey away from the nearest telephone,

laid out on the ground. 'Was it the very best that could be projected over the country under consideration?' to which we could very seldom answer 'Yes, what we have is the strongest series of figures obtainable.' Now, through the introduction of the aeroplane for the first time, as far as I know, into this class of survey work, we have met with signal success and established a record not hitherto approached by this survey. No one who knows British Columbia and her mountains, and is familiar with the difficulties confronting an engineer in quest of a first-class primary geodetic scheme of triangulation under these conditions, can doubt for a moment the inestimable boon the introduction of aircraft has meant. In future we can hardly view it other than as an absolute *sine qua non*.' He added that the saving in expense on the year's work amounted to over 12,000 dollars.

The above are just a few cases typical of very many reports by delighted and surprised officials. It is obvious that the aeroplane had not much difficulty in making converts.

There was romance and discovery in those early reports of eight years ago. Now the aeroplane is accepted in Canada as an aid to survey and inspection as regular and as dependable as the slide-rule. The reports lose in picturesqueness as they prosaically record that in 1927 vertical photographs from the air were taken of 17,200 square miles, and oblique photographs of 28,650 square miles. In the last four years, the total square mileage photographed vertically is 36,900, and obliquely 154,450.

From the original survey flights which delighted officials by extending their view, an elaborate programme of aerial

photography has now grown up. In 1925 a Central Aerial Surveying Unit of the Topographical Survey was established to control and co-ordinate all aerial photographic operations. This has prevented overlapping of demands by different departments and has assisted in the proper development of the work. There is no intention of limiting the requests from other departments, but all the photographs taken are available for the use of each department. A set of photographs taken to investigate the water power possibilities of a river may prove of equal value to the forest service or the Department of Mines. By this time aerial photographs covering nearly 200,000 square miles of Canada must be available for the study of any department.

The Smuggler and the Seaplane

There is no better subject for a boys' story than a tale of smugglers. But for sheer romance the tale of the Smuggler and the Seaplane is not equalled even by the supernatural horror of "The Smuggler's Leap" in *The Ingoldsby Legends*, when

"Down they went—o'er that terrible fall—

"Horses, Exciseman, Smuggler, and all!!!"

The smuggling which takes place at Vancouver is not of barrels of rum, but of packets of opium and cocaine brought

The profits of the business, however, are high, and so ingenious brains are to be found in it. Another method was devised for getting the stuff ashore, usually farther up the coast. Sometimes police agents would send in news of such a landing, but unless the receivers were caught red-handed very little could be done. Here again the seaplane could give help. On one occasion news was received in Vancouver of such a landing far up the coast. Horses, trains, motor cars, supposing that any of them could have gone straight to the spot, would have arrived too late. The Customs officer rang up the seaplane station and asked for help. Before the smugglers' agent, a longshoreman, could pass on his precious but dangerous package, a flying-boat landed off the shore and he was arrested. His conviction and imprisonment broke up for a time the organisation of which he was one of the principal parties.

It is now not found necessary to escort every incoming steamer by seaplane, but occasional escorting flights are made, and they have rendered the smuggling business so precarious that it has been much circumscribed.

"The Keneu, the Great War Eagle"

The descendants of Hiawatha and the Mohicans are not so picturesque or so dangerous to civilisation as they once were,

Halifax
Harbour,
Nova Scotia.



on steamers from China, and in great demand in the opium dens along the Pacific coast. The lascars and others who bring it are similar in greed but different in methods to the redoubtable Smuggler Bill of the Legend, while the "Exciseman Gill" is mounted, not on a terrible Dun horse with smoking nostrils and blazing eyes, lent by the Devil, but on a flying-boat from Jericho Beach. Truth has truly been said to be stranger than fiction.

Customs officers have always been extremely clever at searching a steamer when it reaches port, and have often discovered quite small packets of pernicious drugs which would command a very high price in the proper quarter. The smugglers' method, however, was to drop the packets overboard, wrapped in oiled silk and attached to floats while the vessel was still some distance outside Vancouver harbour. There would be plenty of small boats round about, and in some of them were confederates who would collect the packets and convey them ashore. Even Customs patrol boats could not entirely guard against this. But when a seaplane circled overhead the matter became much more difficult and hazardous. It might be possible to drop the packet over the side without attracting much attention, or running much risk of identification; but if any boat in the neighbourhood was seen to behave in a suspicious manner, the flying-boat would alight near it and officers would go aboard to investigate. In fact, for a while the smugglers were checkmated.

but they still need and receive attention and care from the Government of the Pale Faces. The Dominion Government pays treaty money to the tribes, and a State department looks after their affairs and interests. Officials have to go periodically to arranged spots, of which Norway House on Lake Winnipeg is one, to meet the chiefs and pay over the treaty money. Expeditions through the forest always cost money to equip, and they may be unpunctual at arriving at a given spot on a given day. It is undesirable that the Dominion should be late in paying the treaty money. Again time is saved and convenience served by sending these officials out in aircraft. The Indians are educated nowadays, and they probably do not regard the aeroplane as a "great war eagle" or a species of magic, but they must, none the less, be impressed by the white man's conquest of the air.

Dusting Crops

The use of aircraft for dusting crops in order to destroy pests is rather a recent development. It promises very well, but more experience in carrying it out is required. Last year, two important experiments were carried out by the R.C.A.F. on behalf of the Department of Agriculture. The pests which were attacked were the spruce budworm and the wheat stem rust.

A few years previously, an outbreak of spruce budworm in Quebec and the Maritime Provinces (New Brunswick, Nova Scotia, and Prince Edward Island) killed a very large



Prairie, near Fort
Saskatchewan,
Alberta.

part of the fir and red spruce, and was described as probably the most destructive infestation of the sort which has ever occurred. It was estimated that between 100 and 200 million cords of pulpwood were destroyed. It seems that in any sort of difficulty nowadays in Canada, the department concerned calls in the R.C.A.F. The most hopeful method of dealing with the pest was by dusting areas with poison dust distributed from an aeroplane. Experimental plots were chosen, and a Keystone Puffer aeroplane fitted with a hopper was sent down. Several difficulties had to be faced. The budworm feeds by boring into the buds before they have opened fully, and so is largely protected from the dust. However, the tests were carried out, and useful lessons were learnt as to the method of operation. The machine flew at 95 m.p.h., and it was found that it had to keep very low above the tree tops. Quite windless weather was also necessary, or else the poison was spread too widely to be effective. The study of the effect on the caterpillars has not yet led to definite conclusions, but the method appears to promise well.

Wheat dusting with sulphur to destroy stem rust was also tried in northern Manitoba, also with a Puffer aeroplane, and again good results are hoped for when the method of operation has been elaborated as a result of the experiments.

Hudson's Strait Expedition

(See Map on page 8)

Last year, the Dominion Government, having decided to complete the Hudson's Bay Railway, despatched an expedition to Hudson's Strait to make an aerial study of the ice conditions and movements. Three flying bases were established in the strait, each equipped with two Fokker Universal aeroplanes, with wheels, floats, or skis, as required. The air force officer in command was Sdn.-Ldr. T. A. Lawrence, and the Air Force personnel numbered about 20. The expedition assembled at Halifax, and on July 17, 1927, sailed for the strait in the ice-breaker "Stanley," accompanied by the freighter "Larch." A Moth seaplane was carried on the deck of the "Stanley" to assist in finding the bases which

Stanley Mission,
Churchill River,
Saskatchewan.



Charlotte Town,
Prince Edward
Island.



had been erected previously by contractors. Base "A" was at Port Burwell, on the promontory east of Ungava Bay. Base "B" at Nottingham Island, at the western end of the Strait, and Base "C" at Wakeham Bay, on the southern shore, about half-way between the other two. Regular flying patrols commenced on September 20. Before that time, it was known that there was no ice in the Strait. On November 16, floe ice was first reported off Nottingham Island. It was found that the ice forms first at the west end of the Strait and works eastward. In all, 42 flights were made. Fog prevented flying on a number of days. The Moth proved invaluable for reconnaissance work, but was, unfortunately, wrecked by a sudden storm when moored out in Wakeham Bay. One Fokker was also lost. It was being flown by F/O. A. Lewis, with a Flight-Sergeant and an Eskimo guide known as One-eyed Bobby, when it was forced to land on ice floes in the Labrador current. The crew had to abandon the machine, but after a fortnight's hard struggle they got back to safety. The five remaining Fokkers are to fly back to Ottawa in formation, some time in September, from Ungava Bay across northern Quebec to James Bay and Moose Factory and down the Ottawa river, a flight of 1,200

miles. The results of their survey are understood to have been quite satisfactory.

Air Mail Experiments

For some years past the Canadian Post Office has authorised the carriage of mails by air, without taking any initiative in the matter. The first such service was one between Haileybury in Ontario to the Rouyn goldfields. This was carried out by a Vickers Viking. Other early services of a similar description were between Sioux Lookout and Red Lake, Whitehorse and Keno in Yukon, Carcross in Yukon and Atlin, B.C. Despite the difficulty of the conditions these services were carried out very successfully without any Government support. By dint of experience, Canadian pilots and mechanics are now experts at keeping their engines running, however low the temperature. It is now held possible, though not a simple matter, to run air mails all the year round in Canada.

Occasional services to outlying parts such as the Yukon and Mackenzie river basin are considered very desirable. Frequent bad weather must be expected, but even an irregular air mail which is dependent on the weather is

Thousand
Islands, St.
Lawrence
River.



thought to be a very great advance on any system of communication with civilisation which those districts have hitherto enjoyed. Consequently, with no schedule to adhere to, this problem is not looked on as a difficult one. It is certainly a case in which the aeroplane is the only possible means of bringing certain settlements into touch, more or less regularly, with the populous parts of the country.

Four such mail contracts were granted last year. These were:—(1) The Canadian Transcontinental Airways of Quebec received a contract to carry mails up to 1,500 lbs. weekly between Murray Bay and Seven Islands (260 miles) on the northern shore of the estuary of the St. Lawrence river, with an extension once a month from Seven Islands to Port Menier in the large island of Anticosti (90 miles). This service started last December. Fairchild monoplanes with Wasp engines were used.

(2) Moncton, in New Brunswick, to Magdalen Islands, in the Gulf of St. Lawrence. The same firm secured the contract for this service, and the same type of aircraft is used. The distance is 120 miles. The service opened last winter, and never before had the islanders received mails in the winter.

(3) Leamington to Pelee Island. This is a short service of 22 miles. Pelee Island on Lake Erie is the southernmost point of Canada. Ice often interrupts communications with

It has been decided not to rush impetuously at a trans-Canada air mail, but to build up by degrees. A start has accordingly been made with an experimental service to speed up the mails between Great Britain and Montreal. An aeroplane has been making a connection at Father Point in Rimouski, P.Q., on the southern shore of the estuary of the St. Lawrence river, with incoming and outgoing steamers. Though seaplanes were used on the first flights, the conditions on the estuary are not suitable for that type, and a series of aerodromes has been established so that landplanes can be used. Some of these flights shortened the time of delivery of the mails by as much as four days.

Consideration has also been given to services between Winnipeg and Calgary (a most ambitious mileage), Montreal and Winnipeg, Montreal and Halifax. It is to be noted that a mail contract does not include a subsidy.

In connection with air mails it should be mentioned that a mooring tower for airships is being erected at the St. Hubert aerodrome outside Montreal. The intention is that R.100 shall make a trip to Montreal next summer.

Civil Operating Companies

There are over a dozen major flying companies in Canada, and some brief mention may be made of the following:—

(1) Canadian Airways, Ltd.—This firm has its headquarters



Niagara Falls.

the mainland. The contracting firm is the London Air Transport. The type of aircraft used is the Waco 9, with Curtiss OX5 engine. Four trips a week are made.

(4) Rolling Portage to Red Lake. This service provides for a round trip of 300 miles connecting Red Lake, to the east of Lake Winnipeg in Manitoba to Rolling Portage and Woman Lake. The contractors are Western Canada Airways, Ltd., of Winnipeg, a firm which has been operating in that district with great energy and efficiency for the past 18 months.

Regular schedule services between large towns are considered more difficult to organise, on account of the extreme difference of conditions in Canada in winter and in summer. A summer service would be easy, especially in the central parts of the country. The crossing of the Rockies is a problem, though not an insuperable one; while fog, the worst drawback of all, is prevalent on both coasts. As far west as the Ontario-Manitoba boundary seaplanes could be used in summer and ski-planes (if we may coin that word) in winter. In spring and autumn (the "fall"), however, only landplanes are possible, and their use implies an elaborate ground organisation, and the preparation of numerous aerodromes and landing grounds. Here again, while the matter would be an easy one so far as the Prairie Provinces are concerned, the mountains present a new set of problems.

at Three Rivers, P.Q., and has carried out several contracts for Quebec Province. It carried out the experimental mail flights between Montreal and Father Point for the Post Office.

(2) Canadian Transcontinental Airways, as mentioned above, holds two of the current mail contracts.

(3) Fairchild Aviation, Ltd., has its main base at Grand Mere, P.Q., and its main work is aerial survey and photography. It carried the mail from Haileybury to Rouyn before the railway reached the latter town. It has carried out fire patrols for a paper company. It uses various types of aircraft, among others Aeromarine and Curtiss flying-boats, the Huff-Daland float-plane, the Vickers Vedette, and the Fairchild monoplane.

(4) Brock and Weymouth, of Canada, is a branch of a Philadelphia firm, which specialises in stereoscopic air photography.

(5) Patricia Airways and Exploration Co., Ltd., has been operating a service to the Red Lake mining area from Haileybury and Sioux Lookout, using a Lark aeroplane and two Stinson seaplanes.

(6) London Air Transport, Ltd., as mentioned above, operates the air mail from Leamington to Pelee Island.

(7) J. V. Elliot Air Service does mixed flying work with 10 aircraft in Western Ontario. During last year the machines

of the company photographed 4,200 sq. miles. Flying instruction is given, and exhibition flying is also part of the programme.

(8) Canadian Air Services, Ltd., has a very popular and successful flying school at Peterborough in Ontario, and also does some air photography.

(9) Western Canada Airways, Ltd., in addition to carrying the air mail between Rolling Portage and Red Lake, does extensive air transport in northern Ontario, Manitoba, and Saskatchewan. The Western Canada Airways, Ltd., was incorporated under Dominion charter, in December, 1926, for the purpose of engaging in an entirely, and at that time, little known, venture in Canada, namely, commercial aviation.

One Fokker Universal four-passenger monoplane (Wright "Whirlwind") was purchased and flown from New York to Hudson, Ontario, a northland outpost and arrived there on Christmas Day, 1926. There, at Hudson, a temporary base was established. Three men were in charge: Capt. H. A. Oaks, formerly R.A.F. and Canada's premier commercial pilot; S. A. Cheesman, aero engineer, and J. A. MacDougall, secretary-treasurer of what is now the country's largest commercial air service.

A service was immediately inaugurated between Hudson and the active gold-mining areas in the Red Lake district, and daily trips were made when weather was not too severe and visibility permitted flying. This winter flying was accomplished on skis, made of tempered wood which proved very effective.

So successful were the Airways in the development of skis for winter flying that Bernt Balchen, Floyd Bennett and the crew of Commander Richard E. Byrd's tri-motored Ford plane flew to Winnipeg last April to secure a set of winter undergear and to test it in northern Canada winter conditions. The Byrd plane, at that time, was being tested for its projected flight to the South Pole regions this autumn.

Instant success then greeted the first small efforts of the Airways at their one base, Hudson, Ontario. It soon became apparent that one machine could not cope with the rapidly increasing demand for the aeroplane, and in February, 1927, two additional Fokker Universals were purchased and flown from New York to Hudson.

In March, 1927, at the urgent request of the Government's department of Railways and Canals, a contract was entered into for the transportation of eight tons of material and equipment and 14 men from Cache Lake on the Hudson's Bay railway, under construction, into Fort Churchill, which contract was to be completed before the spring break-up.

The transportation of this material and these men was effected in record time and under unprecedented conditions,

the severity of the winter weather leaving its mark on personnel and machines. The country over which it was necessary to fly—about 1,000 miles from point to point—was uninhabited and landing places were few and hazardous. Notwithstanding these difficulties, however, success accompanied the fulfilment of the exacting contract, and the Western Canada Airways was established in official and public esteem as a reliable, swift, and sure means of communication with areas in Canada ordinarily reached from civilization only by the slow, painful progress of dog team and sled—a means of transportation which takes months to reach areas served in a few hours by the aeroplane.

While the Churchill contract was being filled, a machine left at Hudson for zone work was keeping up regular service between civilization and the mines, taking in mining engineers, equipment and, in several cases, heavy machinery for emergency repairs. Between the break-up period (when the ice leaves the open water) and the opening of navigation all machines were converted from ski landing gear to floats for summer work which is carried out on water.

On June 1st, 1927, the Airways enlarged the scope of their operations by opening a base at Lac Du Bonnet, gateway to the mining belt of Central Manitoba, and not far from Winnipeg. The base was for the express service of prospectors, mining men and the companies operating in this territory. Machinery, supplies and mail were carried in on regular schedule, saving much time for the companies involved.

A mining deal of great importance to the development of the Northern Manitoba properties was put through during the summer of 1927, affecting copper zinc and gold areas at Cold Lake, in the far north, and in this connection the company was approached by the Sherritt-Gordon Mines Limited as to transportation of the necessary equipment and men to carry out the contract which consisted of transporting by air 35 tons, including petrol, diamond drills, supplies, and 40 men. This was completed in record time. In one case a large diamond drill defied, for a time, the efforts of one machine to take it in to the mines. It was taken apart, however, and the one machine, making three trips, finally completed the task of delivering it to its destination.

The company now has about 30 machines, including two Fairchild monoplanes, six Avro Avians, and a fleet of Fokkers.

Two de Havilland "Moths" are used at the training school while the Fairchilds are kept for communication purposes and inspection trips by officers. Twelve Fokker super-Universal monoplanes (Pratt and Whitney "Wasp" 400 h.p.) twelve Universal Fokker's (Wright "Whirlwind" 200 h.p.) and one tri-motored Fokker monoplane (three "Wright Radials")

Rocky
Mountains,
Canada.





Snow Fields,
Rocky
Mountains.

200 h.p.) make up the operating fleet. Quite recently this firm is stated to have bought up Pacific Airways Ltd., of British Columbia, and to be intending to run a triangular service between Vancouver, Victoria, and Seattle, using nine aeroplanes for the work of one round trip daily. This firm is full of enterprise and is an excellent example of success unsupported by a Government subsidy.

(10) Pacific Airways, Ltd., whose incorporation with Western Canada Airways has recently been announced, has done good work with one H.S.2L boat on contract for the Department of Marine and Fisheries, and also for the B.C. Forest service.

(11) Dominion Airways, Ltd., did wonderful work for the Forest Service of British Columbia with one Moth seaplane. A penalty clause was inserted in the contract for failure to carry out the programme each day, but the Moth never failed. Twenty fires were detected during the season last year.

(12) Yukon Airways & Exploration Co. operated the services between Whitehorse and Keno as well as between Carcross and Atlin, which were mentioned above. The company was allowed to use its own mail stamps. A five-seater Ryan cabin machine was used, and flights were made with the temperature 50 deg. below zero.

AIR SERVICES IN CANADA

[Note.—The following extracts from the *Canadian Quarterly Review* by Group Captain J. S. Cott, M.C., A.F.C., p.s.a., R.C.A.F., give further information on Canadian aviation, particularly regarding the Air Services of Canada, and supplement the article in the foregoing pages by Maj. Robertson.—Ed.]

THE air services of Canada, which form part of the Department of National Defences, consist of:

- The Directorate of Civil Government Air Operations.
- The Controller of Civil Aviation.
- The Aeronautical Engineering Division.
- The Royal Canadian Air Force.

The Directorate of Civil Government Air Operations

The Directorate of Civil Government Air Operations administers and controls all air operations carried out by State aircraft other than operations of a military nature. Under the Director are:—

- Officer i/c Civil Air Operations.
- Officer i/c Aircraft Equipment and Stores.
- Officer i/c Administration, Organization, Personnel Services, with subordinate officers.

There are air stations at High River, Alta, Winnipeg, Man., Ottawa, Ont., and Dartmouth, N.S., with a depot and photographic section at Ottawa, and sub-stations or detachments at various points in Saskatchewan and Manitoba. There are also eight photographic departments for all the Provinces except B.C. and P.E.I.

Controller of Civil Aviation

The Controller of Civil Aviation is responsible for the administration of the Air Regulations, and such other duties as the Honourable the Minister may direct. Under him

are a Superintendent of Air Regulations and a Superintendent of Airways.

Examination of Personnel and Inspection of Aircraft.—Air Regulations require that all pilots, air engineers, aircraft and air harbours in Canada shall be licensed by the Controller of Civil Aviation, and, under instruction, by approved examiners from Air Force stations.

The following figures give the number of personnel and aircraft engaged in civil aviation during the last three years:

	1925	1926	1927
Private pilots ..	7	8	9
Commercial pilots ..	29	38	65
Air engineers...	86	83	102
Aircraft ..	34	44	62

Aeronautical Engineering Division

The Aeronautical Engineering Division is required to act in a consultant capacity respecting all technical and engineering matters pertaining to the Air Services and the carrying out of the duties prescribed by the Air Board Act and regulations thereunder. The division is in charge of the Chief Aeronautical Engineer and is divided into three main sections as under.

(i) *Research.*—The Research Section is mainly responsible for the preparation of specifications for new types or aircraft and aircraft accessories, the supervision of type trials for new types of aircraft and of the trials of aircraft which have been modified; the reduction of these results to standard conditions for comparison purposes; the issuance of modifications found desirable either for the purpose of airworthiness or to meet certain service conditions; the design of special pieces of equipment, such as camera mounts, skis, etc.,

the collection and dissemination of technical information, including the issuance of information circulars.

(ii) *Airworthiness*.—Air Regulations, 1920, require that before an aircraft can be operated commercially in Canada or a private aircraft can be operated across the international boundary, the aircraft must be certified as airworthy. The Airworthiness Section is devoted entirely to checking the strength of commercial, private and Air Service aircraft.

(iii) *Inspection*.—The inspection of aircraft during construction is carried out by the Aeronautical Inspection Department, by means of small detachments of officers and N.C.O.'s stationed permanently at the works of the various manufacturers. The administration of these detachments is carried out from headquarters, and all instructions are issued from headquarters. The work of the Inspection Section at headquarters consists in issuing instructions to inspectors, particularly instructions with regard to new processes and new materials; carrying on correspondence upon queries that arise in the course of inspection; testing materials submitted by contractors to see that they meet the necessary specifications; correspondence through the Intelligence Officer with the Air Ministry upon the subject of new specifications and materials; the study of new processes in

Units	Number of Aircraft	Types *
R.C.A.F. Station, Camp Borden		
No. 1 Squadron (ab initio training) ..	24 (including six reserve)	Lynx Avros.
No. 2 Squadron (advanced training) ..	8 (including two reserve)	Moths or Couriers.
No. 3 Squadron (service) ..	14 (including four reserve)	Siskin, Atlas, Fairchild.
There are also a ground instructional school, workshops, and stores depot.		
R.C.A.F. Station, Vancouver		
No. 4 Squadron ..	4 ..	Three Avros, one Courier.
No. 5 Squadron ..	2 ..	Fairey III F. (service)
R.C.A.F. Communication Flight, Ottawa		
Communication flight ..	3 ..	One Avro, one Vedette, one Corsair.

* NOTE.—Certain modifications as to types have since been made, and some of the machines given may now have been changed.—ED.]

Indians in their
Sunday Best,
Pukkatawagan,
Manitoba.



manufacture; the correspondence relating to the allocation of inspection duties, particularly the decision as to whether parts shall be inspected at source or on receipt.

The Royal Canadian Air Force

The Royal Canadian Air Force administers and controls all military air operations. The policy of the Royal Canadian Air Force is as follows:—

- To develop and maintain air power in Canada.
- To provide adequate training facilities for all Government air services.
- To provide a nucleus Air Force round which service units can be formed in the event of war.
- To build up a reserve of pilots and mechanics.

In order to provide effectively for the carrying out of these duties and to ensure that too great a variation in procedure does not exist between the R.C.A.F. and the R.A.F., the more established procedure of the R.A.F. in respect to administration, stores and equipment, is being adhered to as closely as conditions permit. The R.C.A.F. is, therefore, profiting by the experience of the older and larger service, the R.A.F., and in the case of emergency a closer understanding and co-operation will be existent between the two forces.

Organisation.—The R.C.A.F., as the strictly military branch of the air services, comes under the Chief of the General Staff. The R.C.A.F. headquarters at Ottawa consists of a director, an assistant director and six staff officers, the duties being divided under the heads of:—

Organisation and staff; Training; Operations and intelligence; Regulations, Personnel; Equipment.

The principal station is at Camp Borden, Ontario, with another station at Vancouver and a communication flight at Ottawa.

R.C.A.F. Liaison Office, London, England.—The R.C.A.F. Liaison Office is in charge of an officer, permanent R.C.A.F., with an under-staff of civil employees, and is maintained as part of the office of the High Commissioner for Canada, but is housed in the Air Ministry, London, England.

The duties which devolve on this officer and his staff consist of the collection and transmission of intelligence of all kinds between the R.A.F. and the R.C.A.F. By reason of his location, the Liaison officer has ample opportunity to permit his keeping in touch with the latest developments in aviation in Great Britain and Europe for communication in Canada.

Selection of Personnel.—The nature of the equipment used in the R.C.A.F. requires a high standard of technical knowledge on the part of all ranks in the service. It is the policy of the R.C.A.F. to secure officers and airmen from the following sources:—

Officers.—From gentlemen cadets who have graduated from the Royal Military College and from students of recognised universities who have attained their degree in applied science of engineering.

Airmen.—From the ranks of the skilled artisans of industry and from the graduates of certain technical schools where they receive special training.

Training.—To fit the personnel of the R.C.A.F. to carry out their varied duties efficiently, almost endless training is necessary. The greater part of this training is carried out at Camp Borden, though personnel are also trained at Vancouver, at commercial plants, at universities, and in the Royal Air Force. An outline of some of the training is as follows:—

(i) *Ab initio Flying Training*.—*Ab initio* flying training is given to provisional pilot officers and N.C.O.'s selected for training as pilots. In accordance with the stated policy for the selection of officers for the R.C.A.F., to obtain young men

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having a sound education, with special qualifications on the technical side, arrangements have been made with recognised universities to obtain a number of students of applied science and engineering faculties and train them at Camp Borden during the summer vacation. A number of gentlemen cadets from the Royal Military College are accepted each year in the same way. During training they are granted the temporary rank of provisional pilot officers.

The course of training consists of three terms, each of three

10 to 15 officers advanced training at Camp Borden. This course will include flying on the latest training and service types and advanced instruction on service subjects, such as Army Co-operation, Armament, Air Pilotage, etc. The majority of these officers will be P.P.O.'s who qualified for wings during the summer of 1927.

(iii) *Service Flying Training* :—Up-to-date service aircraft will be available this year for the first time in R.C.A.F. history. It is proposed to organise a Service Squadron at



Royal Canadian
Air Force Flying-
Boat, Northern
Manitoba.

to three and a-half months' duration (approximately May 15 to September 1) in three consecutive years.

On completion of the Provisional Pilot Officers' Course, successful candidates are eligible for :—

- (a) Appointment as pilot officers in the Permanent R.C.A.F.
- (b) Appointment as pilot officers in the Non-Permanent R.C.A.F.
- (c) Transfer to the Reserve of Officers.
- (d) Employment in the flying capacity in civil aviation.

Camp Borden consisting of one Flight of fighting aircraft, one Flight of Army co-operatiin aircraft, and one Flight of photographic aircraft. Training will commence as soon as possible, and will continue until the personnel of the squadron have attained a high degree of efficiency in their respective work. The methods of training adopted in the R.A.F. will be followed as closely as possible.

(iv) *Refresher Flying Training*:—Refresher training is carried out periodically at Camp Borden for the personnel of



Photographic
Flying-Boat and
Crew, Royal
Canadian Air
Force.

This scheme of training has been in force since 1923 and while the numbers selected each year have been limited, gratifying results have been obtained.

The training of N.C.O. pilots was authorised in November, 1926. During the winter 1926-1927 four N.C.O.'s qualified for their wings. At present there are six N.C.O.'s undergoing *ab initio* training and should qualify for wings in the near future.

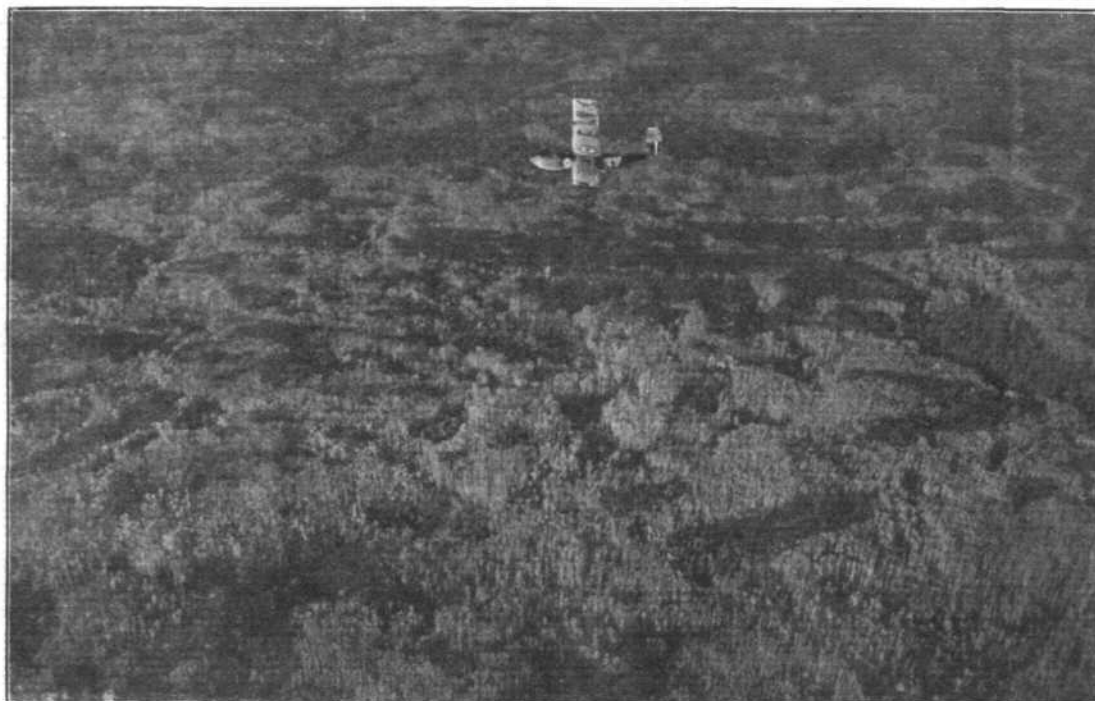
(ii) *Advanced Flying Training* :—When a pupil qualifies for pilot's wings he is far from being a fully trained pilot ; it is proposed, therefore, during the present year to give

the R.C.A.F. and the Directorate of Civil Government Air Operations, to improve the standard and to permit personnel employed on other duties to become familiar with the latest developments and methods in the varied lines and subjects required of Air Force personnel.

In addition to service personnel, a large number of commercial pilots have been given refresher courses at Camp Borden during the last four years.

(v) *Unit Winter Training*:—During the winter when *ab initio* flying training and operational flying is not being carried out, officers and airmen, not attending courses, are

**Mapping Timber
Types, Eastern
Manitoba.**



given instruction at their units, on service subjects. These courses are arranged to interfere as little as possible with routine duties.

(vi) *Technical Training for Boys* :—With the expansion of the Air Services there arose an important factor in respect to the supply of young and semi-trained airmen. Technical schools throughout Canada have been asked to train boys in aeronautical subjects with a view to enlistment in the R.C.A.F. when of age. This training is being carried out along the following lines :

The technical school course for boys is usually of three years' duration, the first year being the same for all courses. In the second year, boys who have completed their second year at technical school, and are considered suitable for the particular trade specified in the quota, are enlisted in the non-permanent R.C.A.F. They are enlisted as " Boys " if between the ages of 16½ and 18 years, or as " Aircraftmen,

2nd class " if between the ages of 18 and 24 years, and are attached to an R.C.A.F. unit for instruction during the summer vacation. Having successfully completed their technical school training they are enlisted in the permanent R.C.A.F. after having passed the necessary trade tests. The first course, consisting of 19 boys, started on July 1, 1927, and 16 boys successfully passed the first period of training.

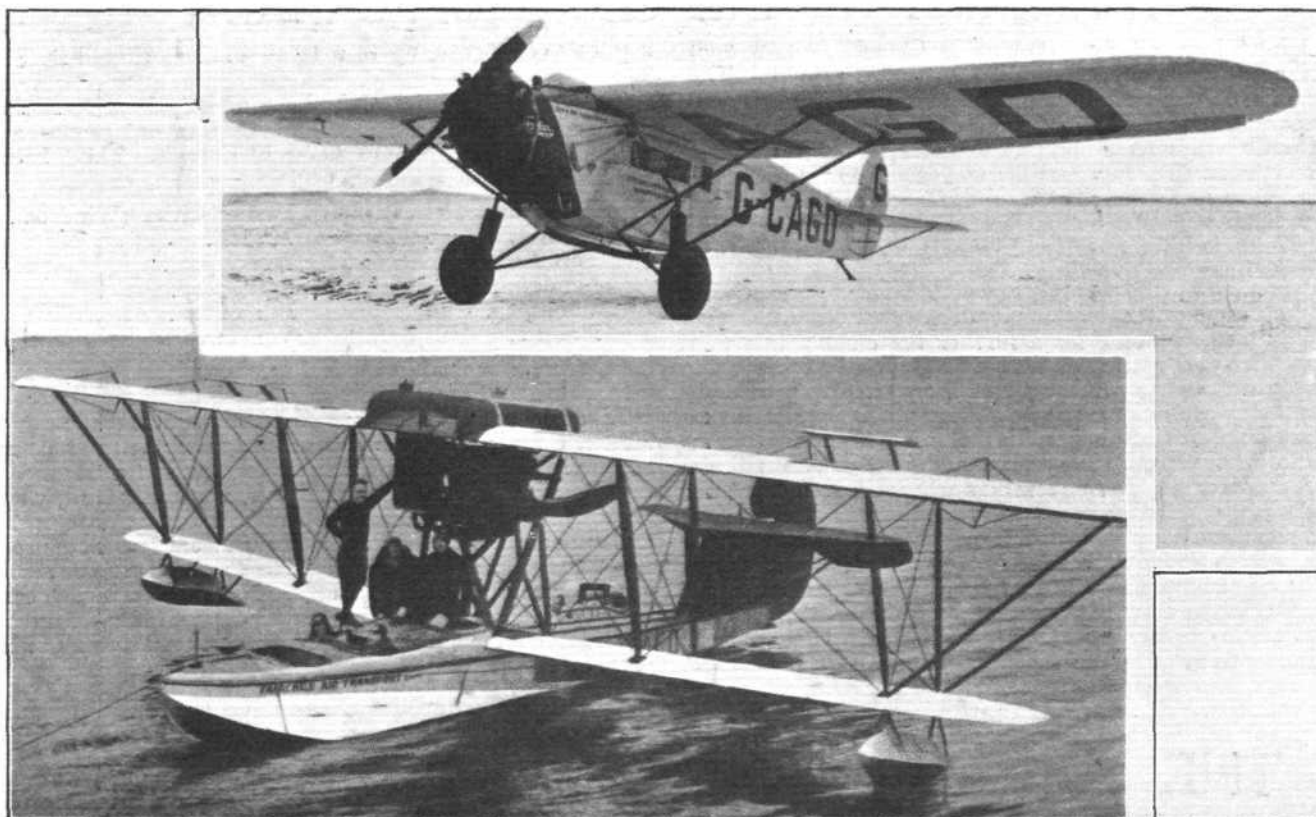
In order to foster and further the co-operation of technical schools, a bond of \$100 is to be given to schools from which airmen have qualified and been enlisted in the permanent R.C.A.F.

(vii) *Civilian Flying Training* :—On the recommendation of the Controller of Civil Aviation, a limited number of pilots from commercial companies, the Ontario Government Air Service, and Flying Clubs, are given refresher training and training for flying instructors.

(viii) *Special Courses* :—Numerous courses have been



A CANADIAN AIR STATION : Victoria Beach, Manitoba.



CANADIAN COMMERCIAL AIRCRAFT: Above is a Fokker "Universal" monoplane as used by Western Canada Airways. Below, a Curtiss flying-boat which was employed by the Fairchild Air Transport on the Haileybury and Rouyn service.

arranged for by the R.C.A.F. for the different branches of the Air Service in 1928. These include:—

For the Civil Government Air Operations Branch:—

Specialist training on enlistment (7 months) Storekeeping (1 month), Training Pool (1 year), Seaplane training (2 months), Advanced training in Navigation, Cloud Flying and Photography (5 months), Airmen Pilots *ab initio* (6 months), Advanced training for *ab initio* pilots (1 year) (Reserve).

For the Controller of Civil Aviation Branch:—

Commercial Pilots (1 month), Flying Instructor's Course for Commercial Pilots (1 month), Flying Club Instructors (1 month).

For the R.C.A.F.:—

Service Training Squadron (1 year), Specialist Training on enlistment (7 months), Army Co-operation (1 month), Storekeeping (1 month), Training Pool (1 year), P.P.O. training (3 months), Boys' technical training (2 months), Staff College Preparatory, Kingston (3 months), Artillery co-operation (Army) (15 days), Auxiliary (Borden) (1 month), Auxiliary (local) (14 days), Miscellaneous (Wood Technical, parachutes, etc.) (as long as necessary).

These courses provide for the training of 268 officers, commercial pilots and flying club instructors, and 264 N.C.Os., airmen and boys.

Selected officers of the R.C.A.F. also attend courses in England as under:—

Imperial Defence College (1 year), R.A.F. Staff College (1 year), Royal Naval Staff College (1 year), Army Co-operation (3 months), Armament (6 months), Flying Instructors (3 months), Air Pilotage (3 months), Aeronautical Engineering (10 months), Storekeeping (1 year), Wireless (7 months).

Exchange of Officers.—An exchange of officers with the Royal Air Force for a period of two years is being carried out under the following categories:—

- 1 seaplane pilot.
- 1 stores officer.
- 1 Engineer officer on aircraft inspection work.

These officers of the R.C.A.F. are employed as regular officers of the R.A.F. and at the conclusion of their period of attachment return to Canada with a knowledge which can be embodied in the R.C.A.F. procedure, and will doubtless prove of extreme value. At the same time the R.A.F. officers return to England with first-hand information of

Canadian conditions and the spirit of co-operation within the Empire is further developed.

AIR SERVICES.

The Royal Canadian Air Force

Director (Acting), Wing-Commander L. S. Breadner, D.S.O., p.s.a.

R.C.A.F. Training Stations

Camp Borden, Ont. Officer Commanding, Wing-Commander G. M. Croil, A.F.C., p.s.a.

Vancouver, B.C. Officer Commanding, Flying Officer A. H. Hull.

R.C.A.F. Communication Flight, Ottawa. Officer-in-Charge, Flight-Lieut. H. W. Hewson.

Civil Government Air Operations

Director, Wing-Commander J. L. Gordon, D.F.C., A.D.C., p.s.a.

Stations

Winnipeg Air Station, Man. Officer Commanding, Flight-Lieut. L. F. Stevenson.

High River Air Station, Alta. Officer Commanding, Flight-Lieut. G. V. Walsh, M.B.E.

Ottawa Air Station, Ont. Officer Commanding, Flight-Lieut. R. S. Grandy.

Dartmouth Air Station, N.S. Officer Commanding, No. 1 Depot, Ottawa, Ont. Officer Commanding, Squadron Leader D. C. M. Hume.

Photographic Section, Ottawa, Ont. Officer Commanding, Flight-Lieut. E. R. Owen.

Hudson Straits Expedition. Officer-in-Charge, Squadron Leader T. A. Lawrence.

Aeronautical Engineering

Chief Aeronautical Engineer, Wing-Commander E. W. Stedman, O.B.E.

Civil Aviation

Controller of Civil Aviation, J. A. Wilson, Esq.

Superintendent, Air Regulations, Squadron Leader A. T. Cowley.

Superintendent, Airways, Squadron Leader J. H. Tudhope.

THE LIGHT 'PLANE CLUBS OF CANADA

THE Light 'Plane Club movement in Canada is now well established, after an astonishing mushroom growth. The formation of Light Aeroplane Clubs was officially sanctioned and encouraged by an Order-in-Council of September 24, 1927, the Government having decided to assist in the formation of clubs in the chief centres of population—on similar lines to those obtaining in the Mother Country. For this purpose, funds were provided in the estimates for the financial year 1927-28, sufficient for the purchase of ten light 'planes as an initial issue to five clubs.

The response to this scheme, however, was so prompt and gratifying, that the Government decided to increase the amount so as to provide for a further ten clubs; this was included in the estimates for 1928-29.

Under the Canadian scheme a club is required to provide a suitable flying ground or seaplane station; adequate facilities for housing, repair and maintenance of aircraft and material; provide the services of an instructor and a licensed air engineer, and to have ten members qualified as pilots and 30 members prepared to qualify as pilots.

To clubs complying with these requirements the Government issued two complete light 'planes, with, if necessary, an additional machine each year for five years, provided the club maintained at its own expense aircraft equal in value to such additional Government equipment. The Government also makes a grant of \$100 per *ab initio* pupil who qualifies for

a pilot's certificate, up to a total sum not exceeding \$3,000 in any one year.

The 15 "approved" clubs have already been formed, and several are now "going strong" turning out pilots—as we have reported in previous issues of FLIGHT. The "fifteen" are located at the following centres:—

Montreal.	Border Cities (Windsor).
Ottawa.	Regina.
Toronto.	Moose Jaw.
London, Ont.	Saskatoon.
Winnipeg.	Edmonton.
Halifax.	Vancouver.
Granby, P.Q.	Victoria.
Hamilton.	

In addition to these approved clubs, others, as in the Mother Country, are being formed to the extent of a dozen or so, in various parts of the Dominion. One, for instance, has been formed in Quebec City, but is, we understand, without an aerodrome! Others have been formed at St. John, N.B., and Kingston, Ont. Anyway, the Club movement is progressing as rapidly as a Canadian forest fire, and private flying is, as a result, growing apace also. Needless to say, the D.H. "Moth"—which is used extensively by the Clubs—is breeding in large numbers, as is recorded elsewhere in this Canadian section of FLIGHT.

THE AIRCRAFT INDUSTRY IN CANADA ARMSTRONG SIDDELEY ACTIVITIES

ARMSTRONG SIDDELEY MOTORS, Limited, the allied company of Sir W. G. Armstrong Whitworth Aircraft, Limited, have undoubtedly played a large part in stimulating the progress of aviation in Canada during recent years.

To give the utmost, quickest and best possible service, Armstrong Siddeley Motors, Limited, have, in conjunction with the Ottawa Car Company, established a service station at Ottawa, where the engines in use in Canada may, when necessary, be sent for complete overhaul by highly-skilled Armstrong Siddeley engineers. Thus the loss of valuable flying time is avoided.

It is interesting to note that this firm is the first British aeroplane factory to commence operations in Canada, and it was only after the quiet but thorough study of all the complex problems which are fundamental to successful flying in Canada that the service station referred to above was opened up and equipped.

A conservative estimate of one hundred thousand dollars represents the expenditure Armstrong Siddeley Motors have incurred in research and actual flying experience both in

summer and winter up to June of this year in an endeavour to assist Canadian aviation. The variation of the climatic conditions in the northern latitudes are considerable, the extreme temperature ranging from zero weather in the winter months to extremely hot days during the summer. Considerable difficulties and intricate problems have arisen due to these conditions, and such obstacles as carburation, oil temperature, low freezing fuels and the deterioration of wood construction have been met and thoroughly mastered by the Armstrong Siddeley engineers after exhaustive tests, with the result that the Royal Canadian Air Force have standardised the Siskin all-steel single-seater aircraft for the fighter units and Armstrong Siddeley radial air-cooled engines are now in extensive use all over the Dominion. The Lynx engine, which is being used in connection with forest fire prevention and survey work over a vast unpopulated territory, performed with such success that during the whole of the 1927 season's flying no forced landings or involuntary stops were reported. This record is considerable in view of the difficulties faced and overcome, which were quite



The Armstrong Siddeley Plant at Ottawa

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different from those encountered in the ordinary way of civil or military aviation.

The famous Armstrong Siddeley Jaguar engine in its standard and supercharged form, and the Genet 80/88 h.p. light aircraft engine, are also being used extensively, as is the Armstrong Whitworth "Atlas" type of general-purpose

aircraft. The Armstrong-Siddeley "Lynx" engine is, as previously recorded, employed extensively in aircraft such as the Avro Lynx, the Vickers "Vedette," and the Vickers "Varuna," while up till now the "Genet" engine has done most of its work in the "Genet-Moths" of the Royal Canadian Air Force.

DE HAVILLAND'S IN CANADA

ALTHOUGH it will already be known to most of our readers, it may be well to recall that the de Havilland Aircraft of Canada, with headquarters at 1001, Federal Buildings, 85, Richmond Street West, Toronto, was established in February of this year and put under the very able management of Mr. R. A. Loader, who was a familiar and popular figure at Stag Lane until his appointment to the new post in Canada. A few words concerning the principle upon which the Canadian factory works may be of interest.

With a population of only some 9,000,000, Canada offers a market which, although constant, is relatively limited, and the de Havilland Aircraft Company decided that, this being the case, the Canadian market would not be large enough to support a mass-production factory such as that which has grown up at Stag Lane. The policy was therefore adopted of manufacturing the components in England and shipping them to Canada for erection there, at the new workshops at Mount Dennis, where an excellent natural aerodrome exists, and where workshops were constructed to deal with erection repairs and overhauls and incorporating a service station carrying a large stock of all spares. That the establishment of the Canadian company was well justified is well proved by the fact that large consignments of components leave this country for Canada on almost every boat.

The "Moth" is used in Canada for every purpose to which it is possible to put a light aeroplane. Its duties include patrolling, firefighting, crop spraying, communications, aerial photography, exploration, survey, passenger and freight carrying. Particular significance attaches to the recent despatch of two "Moths" (seaplanes) to Canada. These machines are to be employed immediately on a two years' expedition in the far north, where supplies of spares will be unobtainable. It is worthy of note that the "Moth" seaplane has been selected as possessing that very high degree of dependability demanded for an enterprise of this nature.

A "Moth" seaplane was employed as a reconnaissance machine on the Hudson Strait Expedition last year. Carried aboard the *Stanley*, it proved invaluable in the location of bases until its untimely end in a gale, when it was wrecked at its moorings.

The "Moth" is used extensively by the Royal Canadian Air Force for training, practice and communications flying, and in the Civil Operations branch of the R.C.A.F. One of the new "Gipsy Moths" with de Havilland "Gipsy" engine was shown at the recent aircraft exhibition in Toronto, and as a result a dozen of these machines are now on order for Canada.

Sir Charles Wakefield, that generous supporter and Patron



A "Moth" seaplane at the base of the Ontario Provincial Government Air Service at Sault Ste. Marie, Lake Ontario.

It is only comparatively recently that Canada has really taken an interest in the light 'plane, but in spite of this fact it is noteworthy that already some 100 "Moths" are in operation there, many of them privately owned, or the property of light 'plane clubs. Elsewhere it is recorded that a large number of light aeroplane clubs have come into existence recently, and those which are in actual operation use the "Moth" as their standard machine. On Saturday, September 8, sixteen Canadian light 'plane clubs held their first big inter-club air race over a 100 mile circuit around the border cities. "Moths" gained first, second and third places.

In addition to the de Havilland "Moths" owned by clubs and private individuals, the Canadian Government has 50 of these machines. The Ontario Provincial Government has 10 of these machines, and the "Moth" is also used by the Laurentide Air Service, Montreal; by Western Canadian Airways, Winnipeg; by Dominion Airways, Vancouver; by the Canadian Ministry of Marine, and by some business houses with sufficient initiative to realise the great advantages of air transport.

Saint of aviation, has presented two "Moths" to Canada: a landplane to the Toronto Flying Club and a seaplane to Major-General J. H. MacBrien for his personal use on behalf of aviation in Canada. General MacBrien has for some time been president of the Aviation League of Canada, and was until recently Chief of the Canadian General Staff.

Another distinguished owner of a "Moth" is Mr. J. A. Wilson, Director of Civil Aviation in Canada. An indefatigable worker in the cause of aviation, like our own Sir Sefton Brancker, he regularly uses his "Moth" for every duty connected with his office.

Although the "Moth" is so ably fulfilling the needs in Canada of the private owner, the club, the Air Force, and others who require a two-seater, it must not be imagined that the de Havilland Company does not cater for freight and transport carrying on a larger scale. The D.H.61, specially built for colonial conditions, is finding increasing favour in Canada. Fitted either with the geared or ungeared Bristol "Jupiter" engine, this machine, which carries eight passengers, cruises at about 110 m.p.h., and is thus able to maintain a fixed time table even in the face of strong headwinds. One

of these machines, with interchangeable land and float undercarriages, has recently been supplied to the Ontario Provincial Air Service, and is in use, among other duties, for passenger and freight transport, fire suppression and crop

dusting. The D.H.61 has been supplied to several well-known companies in Canada, including Canadian Vickers, whose machine is a seaplane, and the London Air Transport Company of Ontario, who own a landplane.

CANADIAN-VICKERS, LTD.

It was in 1923 that the Royal Canadian Air Force decided to operate a civil service in Manitoba and called for tenders of Canadian-built machines suitable for the work. From several designs submitted, the Vickers "Viking, Mk. IV" amphibian was selected. Canadian Vickers, Ltd. therefore established at their Montreal plant an aircraft branch with the necessary equipment for the construction of aeroplanes and flying-boats. Later, however, it was found that a more suitable type of machine for the conditions was required, and specifications for suitable types of aircraft were drawn up. As a result, Canadian Vickers, Ltd., obtained the services of Mr. W. T. Reid and instituted a complete designing staff in June, 1924.

Subsequently, Canadian Vickers, Ltd., designed several other types of aircraft, including the following:—

The "Velos," a three-seater, twin-engined (Armstrong-Siddeley "Lynx") pusher biplane—land or seaplane—designed for photographic work.

The "Vista," a small single-engined (Armstrong-Siddeley "Genet") monoplane flying-boat for forest patrol and fire detection.

The "Verderer," a two-seater, single-engined (Armstrong-Siddeley supercharged "Lynx") biplane, land or seaplane, for forestry patrol work over the foothills and mountains of the Western Alberta Mountains, where flying conditions are extremely severe.

The Canadian Vickers "Vedette" flying-boat, used for Forest Patrol and Air Photography.



In addition to building eight Vickers "Vikings" and five "Avro" seaplanes ordered by the R.C.A.F., Canadian Vickers, Ltd., therefore set to work on an entirely new design, and in October, 1924, the first machine was launched. This was the Vickers "Vedette," a three-seater flying-boat fitted with a 200-h.p. Wright "Whirlwind" (or Armstrong-Siddeley "Lynx") engine, intended for forest patrol and photographic survey work. The "Vedette" proved to be a successful craft, and several more were built. It had a maximum speed of 95 m.p.h., carried a load of 665 lbs., climbed to 5,000 ft. in 9 mins., and had a ceiling of 13,000 ft.

They next got out the designs for a twin-engined flying-boat, known as the "Varuna" (fitted with similar type engines) equipped with fire-fighting apparatus and carrying a crew of seven. The performance of the "Varuna" also proved to be satisfactory.

The "Vanessa," a four-passenger cabin tractor biplane, fitted with a single Armstrong-Siddeley "Lynx," or Wright "Whirlwind." It can be fitted with twin floats or wheel undercarriage.

The "Vigil," a two-seater, tractor fuselage biplane of metal construction, fitted with an Armstrong-Siddeley "Lynx," or Wright "Whirlwind," and designed for forestry patrol or training purposes.

We understand that other types are under consideration, including a twin-engined commercial flying-boat, accommodating eight passengers.

Canadian Vickers, Ltd., have also made an arrangement with the Fairchild Co., of New York, whereby each firm may build under licence the aircraft of each other's design. Fairchild cabin monoplanes have, therefore, been constructed at the Canadian Vickers plant.

THE INDUSTRY IN GENERAL

BEFORE the war, there was only one constructor of aircraft in Canada on record, a Dr. Graham Bell, who built and successfully flew some aeroplanes at Baddeck, in Nova Scotia. After the war, operations were commenced with the stock of war aircraft; some of them gifts by the Government of Great Britain, and others purchased from the United States. The shortcomings of these war-type machines soon became apparent, in Canada as in Europe. In addition to this, special characteristics were soon found to be necessary to suit Canadian conditions. Canada was the first British Dominion to circularise the designing firms in Great Britain, laying down specifications of what was desirable for aircraft in Canada. One feature demanded was an air endurance of 10 hours, which proved impossible to satisfy in 1919-20. Still, this move was a very useful one, as it drew the attention

of designers to the fact that what was suitable for north-western Europe was not necessarily suitable for the whole of the British Empire.

The Ottawa Car Manufacturing Co., in addition to its arrangement with Messrs. Armstrong-Siddeley, has also an arrangement with the Consolidated Aircraft Co., of Buffalo, N.Y., for the assembly of their machines in Canada.

The Wright Aeronautical Corporation of Patterson, N.J., have formed a branch company in Montreal for the assembly and service of Wright engines.

Canada looks forward to the gradual building up of a local aircraft industry, which is rightly regarded as a necessity by a country which is already playing a leading part among the countries of the world in the development of civil flying.



The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

REPORT of meeting of the Committee of the Royal Aero Club, held at the Royal Aero Club, 3, Clifford Street, London, W.1, on September 12, 1928.

Present: Lieut.-Col. Sir Francis K. McClean, A.F.C., in the chair; Air Vice-Marshal Sir W. S. Brancker, K.C.B., A.F.C.; Capt. R. J. Goodman Crouch; Griffith Brewer; Lieut.-Col. M. O. Darby, O.B.E.; H. E. Perrin, secretary.

Elections.—The following new members were elected: Harold Brooks, Oscar William Hindley Cooke, Louis Ralph Roney, David Francis Tennant, Sqdn.-Ldr. Francis John Vincent, Flying-Officer Charles Bernard Wilson.

Aviators' Certificates Granted.

8323	Alexander Polwhele Godfrey	Bristol and Wessex A.C.	8365	John Charles Harrington ..	R.A.F. Graduation Certif.
8324	Peter James Booth Reynolds	Yorkshire A.C.	8366	Stanley Oakes Crowther ..	Cinque Ports Flyg. Club.
8325	Kenneth Edgson Wright ..		8367	Arthur Gregory George Marshall ..	Norfolk and Norwich A.C.
8326	Archibald Vivian Campbell Douglas ..	Cinque Ports Flyg. Club.	8368	Clifford Copeland White ..	A.C.
8327	Cyril Bonser Hanson ..	Suffolk A.C.	8369	Arthur Ernest Cooper ..	
8328	Walter Thomas Brownell ..	De Havilland Flyg. School.	8370	James Wilson ..	Scottish Flyg. Club.
8329	Henry Lumb Billinton ..	Suffolk A.C.	8371	Donald Russell Robertson ..	Henderson Flyg. School.
8330	John Alwyn Tweedale ..	Lancashire A.C.	8372	Henry John Cator ..	Norfolk and Norwich A.C.
8331	Andrew Alex Sevastopulo ..	R.A.F. Graduation Certificate.	8373	Alfred James Angus Miller	London A.C.
8332	Ernest Read Ostler ..	Yorkshire A.C.	8374	Stacey Walter Drury Colls	Hampshire A.C.
8333	Arthur James Tillard ..		8375	Robert Sutherland Rattray	London A.C.
8334	Edward George Dalton Fawkes ..	Hampshire A.C.	8376	Stewart Scott Hall ..	Hampshire A.C.
8335	James Riley ..	Lancashire A.C.	8377	Harry Frank Ernest Lynas	Bristol and Wessex A.C.
8336	Adam Houston Anderson ..	Scottish Flyg. Club.	8378	Arthur Golding Barrett ..	Norfolk and Norwich A.C.
8337	Sydney Monro Nesbitt ..	Midland A.C.	8379	Kshetra Mohan Raha ..	De Havilland Flyg. School.
8338	David Francis Tennant ..	De Havilland Flyg. School.	8380	John Cecil Weale ..	Lancashire A.C.
8339	Alfred Ellison ..		8381	Jack Benson ..	
8340	George Grant Savage ..	Midland A.C.	8382	Edward Willoughby Ambrose Stewart	Henderson Flyg. School.
8341	Philip Penrose Bradley ..		8383	Jack Edgar Tyler ..	De Havilland Flyg. School.
8342	Horace Hedley Selvey ..	Nottingham A.C.	8384	Olive Muriel Tremayne Miles ..	Bristol and Wessex A.C.
8343	Frederick Woodburn Murray	Scottish Flyg. Club.	8385	Man Mohan Singh ..	
8344	Ronald Lewes Brinton ..	Midland A.C.	8386	Arthur Avalon Austin ..	Henderson Flyg. School.
8345	Maurice Nathan ..	De Havilland Flyg. School.	8387	Richard Read Bentley ..	R.A.F. Graduation Certif.
8346	Reginald Clare Baxter ..	Midland A.C.	8388	Thomas Hughes Clarke ..	Bristol and Wessex A.C.
8347	Henry Piers Clarke ..	Norfolk and Norwich A.C.	8389	Cecil Raymond Greenhill ..	
8348	Sir Pyers George Joseph Mostyn	De Havilland Flyg. School.			
8349	Jesse Cobb ..				
8350	Sidney Lawrence Duckitt ..				
8351	Graham Compton Hill ..	Midland A.C.			
8352	Gerald Clulee Jones ..				
8353	Justin Arrowsmith Brown ..	De Havilland Flyg. School.			
8354	Philip Aubrey Wills ..	London A.C.			
8355	George James Rayner ..	R.A.F. Graduation Certif.			
8356	George Robert Carpenter ..	De Havilland Flyg. School.			
8357	James Denby Roberts ..				
8358	Henry Maitland King ..	Hampshire A.C.			
8359	Adam Cairns Smith ..	Scottish Flyg. Club.			
8360	Frederick Thomas Taylor ..	Nottingham A.C.			
8361	John Riddoch Rymill ..	De Havilland Flyg. School.			
8362	John Scott Oliver ..				
8363	Peter Du Cane ..				
8364	Tom Tatham Davies ..	Henderson Flyg. School.			

Early Flights.—It was reported that Lord Gorell had accepted the invitation to be chairman of a Special Committee, set up by the Royal Aero Club to investigate the claims to early flights in the British Isles. The suggestion of Lord Gorell that the other members of the Committee should be Lieut.-Col. M. O'Gorman and Lieut.-Col. W. Lockwood Marsh was unanimously approved.

World's Record (Light Aeroplanes).—Communication was read from the Fédération Aéronautique Internationale notifying the Club of the acceptance as a world's record of the following performance:—

Capt. G. de Havilland on a D.H. 60 "G" Moth on July 27, 1928. Altitude, 6,054 m.

British Record (Seaplanes).—The following British record was granted:—

Lady Heath on a Short "Mussel" Cirrus Mark II, on July 10, 1928. Altitude, 3,889 m.

Committee Reports.—Reports from the following committees were received: Royal Aero Club Associated Clubs General Council, Finance Committee, House Committee, London Aeroplane Club.

Aero Club of Singapore.—The application of the Aero Club of Singapore for affiliation was approved.

Temporary Honorary Members.—The following temporary honorary members were elected:—

Capt. W. W. Gallraith, U.S. Embassy.

Lieut. De Vaisseau Antoine Sala, French Embassy.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

Britain to Attempt Duration Record

SQDN.-LDR. J. NOAKES, assisted by F.O. E. V. Major, will attempt to establish a world's duration record, on a special Fairey-Napier monoplane.

Liverpool-Belfast Experimental Service

IMPERIAL AIRWAYS announce that arrangements have been made for an air service for one week between Liverpool and Belfast. The service will be daily between September 24 and 29 inclusive.

Who Made First "Heavier-than-Air" Flight?

WITH a view to establishing who made the first flight in a heavier-than-air machine in the British Isles, the Royal Aero Club has set up a Special Committee, of which Lord Gorell has consented to be the Chairman, to investigate claims to early flights. In order to assist the Committee in its investigations, full particulars of flights made not later than the year 1909 should be sent to the Secretary, Royal Aero Club, 3, Clifford Street, London, W.1.

PRIVATE



FLYING

A Section of FLIGHT in the Interests of the Private Owner, Owner-Pilot, and Club Member

PRIVATE AIR TOURS

EVER since the conception of the light aeroplane it has never ceased to surprise one by the magnitude of the tasks it successfully essays. In long distance air tours in recent years it has played perhaps the largest part. Records have been won with it which might easily have been considered the exclusive possession of higher-powered aircraft. We are provoked to this reflection by two projected flights of great ambition. The first is a world's flight in a Gipsy-Moth by Vicomte and Vicomtesse de Sibour, which started from Stag Lane aerodrome on September 14.

They anticipate their venture to last nine months and cover about 30,000 miles, flying only when the weather is

In America many cities will be visited in the Gipsy-Moth, including Washington, the Vicomte's native place, Los Angeles, San Diego, St. Louis, Chicago and New York. The tour will end with the voyage to England.

The Vicomte is a director of the firm of William Whiteley, Ltd. He was a war pilot of noted skill and daring. The Vicomtesse has received flying instruction and is able to act as a relief pilot. They carry the minimum of luggage.

Light 'Plane Atlantic Flight

The other projected ambitious light 'plane flight is an attempt upon the Atlantic from Newfoundland to Ireland.



["FLIGHT" Photographs]

Vicomte and Vicomtesse de Sibour just before leaving on their world's flight from Stag Lane and (right) their friends discussing their venture. They are (left to right) Mr. G. Selfridge, Miss Fanny Ward, Princess Wiasewsky, Miss Mala Brand and Prince Wiasewsky.

good, to ensure an enjoyable journey. It is their plan to visit friends in all parts of the world, penetrate wild areas to shoot big game, and try to introduce every variety into the flight. It is their hope to follow the course of the Me-Hong River in Siam, which has never been explored by air, so that the natives should see an aeroplane for the first time in their lives.

At Chicago, the home of the Vicomtesse, who is the younger daughter of Mr. Gordon Selfridge, will be visited.

The intended course is through France, Spain, North Africa and through to India via the usual route touching Cairo, Baghdad and Karachi. After calling on friends in India they will leave the Gipsy-Moth at Bangkok and shoot for a month or more in the Malay States.

Another anticipated shooting trip is from Saigon, occupying another month. For the flight up the Me-Hong River, mentioned above, the Vicomte has made extensive search for landing grounds, of which there are very few, and those widely scattered. After the Siam stage will come the journey to China, then a voyage by boat to San Francisco.

and the machine chosen is also a Gipsy-Moth. Lieut.-Com. H. C. MacDonald, D.S.C., is the pilot. In the last issue of FLIGHT we published under this section the story of his previous solo tour to Baghdad which involved a very disconcerting adventure with Arabs and a crash. Commander MacDonald had only 8 hours' solo flying experience prior to that venture and had primarily planned to extend it to India. His Gipsy-Moth was shipped to St. John's, Newfoundland, from Liverpool on September 18.

It should be understood that he will not definitely decide on this Atlantic flight until he crosses to the other side and discovers the weather prospects. Should conditions at the time be against the venture he might then possibly and wisely turn his intentions to a flying tour of America or Canada.

The distance from St. John's, Newfoundland, to Clifden, Ireland, is 1,890 miles.

The Gipsy-Moth will be standard in all respects except for the modifications for the greater fuel capacity. The front cockpit will be fitted with the extra tank and the total amount

of fuel carried will be about 100 gallons, which will allow for a flight of 3,500 miles at an average cruising speed of 100 m.p.h., that is, a duration of 35 hours. For the purpose of making a very limited comparison it might be recalled that Capt. H. Broad remained in the air for 24 hours on the Gipsy-Moth in his recent duration flight and had sufficient fuel for another 4 hours, but of course he was throttled back to the minimum cruising speed. He took off for that flight easily with a load of 80 gallons of fuel.

Commander MacDonald, D.S.C., is on the Emergency List of the Royal Navy, to which he was gazetted on his resignation in August, 1925. He saw service in submarines during the war and also served on the battleship *Warspite*, which was in the thick of the fighting at Jutland.

The late Sir John Alcock and Sir Arthur Whitten Brown crossed the Atlantic from Newfoundland to Ireland in 16 hrs. 12 mins. in June 14-15, 1919, in the Vickers-Vimy (twin Rolls-Royce engines).

The Luxury Air Cruise

We are getting glimpses lately of private flying on a more sumptuous scale than the light aeroplane offers. In the near future there will be the millionaires who want to fly, and naturally they will want to fly in proportionate luxury. When they go to sea they have luxurious yachts, and when they take to the air they will want luxurious aircraft.

We have an example in the air cruise of Sir Eric Geddes over last week-end. He chartered a Short "Calcutta" flying-boat from Imperial Airways, from whom he recently resigned his directorship, to cruise with a party of guests numbering 10 along the west coast of Scotland. Amongst them were Sir

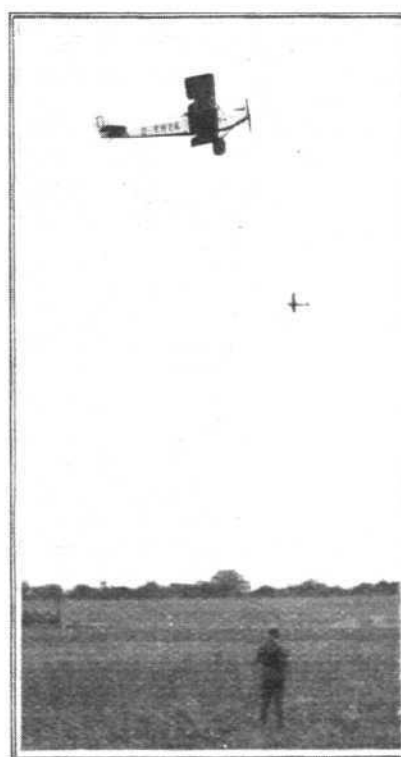
Eric's three sons, Sir Auckland Geddes, Miss I. Goring, Miss J. Wray and Col. and Mrs. F. R. Browning. He also had his butler on board. In the cabin a collapsible card table was installed for bridge, and oil cookers for the supply of hot meals.

The cruise started from Southampton on September 14, and at noon a landing was made at Tenby, where the Mayor, Mrs. M. J. Jenkins, and members of the Council welcomed the tourists. Later the flight was resumed to Stranraer. After covering 1,000 miles over England and Scotland, Liverpool was reached on September 17. Visibility was poor, rain was falling, and a strong head wind was blowing then.

AERIAL YACHT CRUISE

The Hon. A. E. Guinness chartered a Supermarine "Solent" flying-boat (three Armstrong-Siddeley "Jaguar" engines) for an air cruise over the Irish Lakes. The machine was specially fitted out for the cruise, which started from Cowes on September 10, piloted by Capt. H. C. Baird, the Supermarine Aviation Works test pilot. They reached Kingston Harbour in 4 hours 20 minutes. It was proposed to fly to Lough Corrib, in the west of Ireland, but the machine was forced to return owing to strong head winds. The Hon. Ernest Guinness is a member of the Royal Yacht Squadron and has recently been staying at Cowes on his auxiliary barque, *Fantome II*, in which he made a world cruise five years ago.

He is taking to flying seriously now and has a machine being constructed. There was a rumour that he contemplated an Atlantic flight, but this has been officially denied.



[" FLIGHT " Photographs]

The Gipsy-Moth in which Vicomte de Sibour and his wife are now attempting a world's flight. On the right it is seen over Stag Lane Aerodrome, Edgware, leaving for the first stage to Paris on September 14.

British Light 'Plane Records

THE Royal Aero Club announces that a World's Record for Altitude for Light Aeroplanes has been granted to Capt. G. de Havilland, who, on July 27 last, attained a height of 6,054 metres (approximately 20,000 ft.) on a D.H. 60 "G" Moth fitted with a De Havilland "Gipsy" engine. It has also granted a British Record (for seaplanes) to Lady Heath, who, on the Short "Mussel," "Cirrus," Mark II, on July 10 last, attained a height of 3,889 metres.

Berlin-Tokio by Light 'Plane

Two German pilots, Herren Eichler and von Winterfeld, left the Tempelhofer aerodrome on September 15, in a light aeroplane with a 35 h.p. engine on an attempt to fly from Berlin to Tokio, and landed at Königsberg later in the day. The machine they are using is a Klemm-Daimler monoplane,

one of the most attractive types of light aeroplane now manufactured in Germany.

The Air Tourist

MR. IVOR McCLURE, the private owner, has recently concluded another long air tour in his D.H. "Moth" (Cirrus), and we hope to publish his own story shortly. Our readers will recall his accounts of previous tours in our columns.

Another Flight to South Africa

CAPT. G. A. HALSE, of the South African Air Force, left Stag Lane aerodrome, Edgware, with his wife in a "Gipsy" Moth aeroplane for Queenstown, South Africa, on September 9. Their luggage consisted of one suit-case, and the only people to see them off were the mechanics and Lieut. McCrea, also of the South African Air Force.

LIGHT PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.
Bristol and Wessex Aeroplane Club, Filton, Gloucester. Secretary, Capt. C. F. G. Crawford, Filton Aerodrome, Patchway.
Cinque Ports Flying Club, Lympne, Hythe. Hon. Secretary, R. Dallas Brett, 114, High Street, Hythe, Kent.
Hampshire Aero Club, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.
Lancashire Aero Club, Woodford, Lancs. Secretary, F. W. Atherton, Woodford Aerodrome, Cheshire.
Liverpool and District Aero Club, Hooton, Cheshire. Hon. Secretary, W. F. Davison, 357, Royal Liver Building, Liverpool.
Midland Aero Club, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.

Newcastle-on-Tyne Aero Club, Cramlington, Northumberland. Secretary, J. T. Dodds, Cramlington Aerodrome, Northumberland.
Norfolk and Norwich Aero Club, Mousehold, Norwich. Secretary, G. McEwen, The Aerodrome, Mousehold, Norwich.
Nottingham Aero Club, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria St., Nottingham.
The Scottish Flying Club, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.
Southern Aero Club, Shoreham Sussex. Secretary, C. A. Boucher, Shoreham Aerodrome, Sussex.
Suffolk Aeroplane Club, Ipswich. Secretary, Maj. P. L. Holmes, The Aerodrome, Hadleigh, Suffolk.
Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

LONDON AEROPLANE CLUB

REPORT for week ending September 16.—Total flying time, 66 hrs. 20 mins. Dual instruction, 43 hrs. 35 mins.; solo flying, 22 hrs. 45 mins.
Dual instruction (with V. H. Baker): H. W. Marlow, Dr. Cook, A. C. Thomas, G. R. S. Charles, Lord Carlow, Miss C. Johnson, G. E. Clair, A. O. Wiggall, J. F. Chalmers, E. Davis, E. Blythe, C. J. Pool, J. W. Harrison, A. Courtauld, Miss James, G. F. Roberts, J. W. Briscoe, Miss Wilson, Mrs. B. Thatcher, B. Carey, Miss M. Hicks, Lieut.-Col. A. J. Farfan, A. J. Richardson, C. Campbell, B. S. Whidborne, A. F. Burns, C. H. Bergel; (with F. R. Matthews): A. O. Wiggall, Mrs. Cook, J. A. Crane, Miss A. Johnson, E. V. Puddy, J. F. Wood, E. Davis, Miss Fletcher, C. J. Pool, Lieut.-Col. A. J. Farfan, G. H. Mackrow, G. F. Roberts, J. W. Briscoe, Miss Wilson, G. E. Clair, B. Carey, A. J. Richardson, H. W. Marlow, J. W. Harrison, Miss James, F. Clarkson, G. R. S. Charles, A. Courtauld, L. R. Gaywood, L. D. Trappitt, H. Sutton.
Solo flying: J. W. P. Chalmers, V. H. Doree, A. D. Blumlein, G. H. Craig, R. Ward, T. Elder Hearn, W. Roche-Kelly, H. C. Bergel, B. O. Davis, A. F. Burns, W. L. M. O'Connor, E. R. Andrews, D. P. H. Esler, W. Hart, H. Sutton, E. E. Stammers, C. W. Bonniksen, P. W. Hoare, Will Hay.
First solo flights made by: G. R. S. Charles, G. E. Clair, H. C. Bergel.
During the week the following members successfully completed the tests for their aviators' certificates: C. W. Bonniksen, A. F. Burns, A. D. Blumlein, H. C. Bergel, J. W. P. Chalmers, B. O. Davis, T. Elder Hearn.
Replacement of G-EBYD.—It is hoped during this week to take delivery of a new D.H. "Moth" Cirrus Mark II to replace G-EBYD, which was crashed on August 3 last.

BRISTOL & WESSEX AEROPLANE CLUB, LTD.

REPORT for week ending September 15.—Total flying time, 25 hrs.
Instruction under Mr. Bartlett:—Messrs. Amory, M. M. Singh, Davies, Thomas, Keeling, R. S. W. Clarke, Dutton, Hughes.
Solo:—Mr. A. H. Downes-Shaw, Greenhill, Lynas, Singh, T. H. Clarke, and Mr. Keeling.
Cross-country flight:—Miss Miles and Mr. Bartlett, dual cross-country to Stag Lane and return.
On Saturday 15, some 60 lady candidates for the Air League Scholarship were entertained here. Lieut.-Col. N. G. Thwaites, C.B.E., M.V.O., M.C., Assistant Secretary-General of the Air League, was present and addressed the candidates, six of whom were tested in the air with a view to the final selection. Others were given short flights.

CINQUE PORTS FLYING CLUB

REPORT for week ending September 15.—Machine, G.E.B.S.S. de H. Moth X. Total flying time, 13 hrs. 50 mins. Special journey, 1 hr. 50 mins. Joy-rides, 4 hrs. 40 mins. Test flights, 45 mins.
Dual instruction with Maj. Clarke:—Mr. Story, 45 mins.; Mr. Worsell, 1 hr.; Mr. Skinner, 30 mins.; Mr. Walsh, 35 mins.; Mr. Parks, 30 mins.; Mr. Gunner, 30 mins.; Mr. Swinnard, 15 mins.; Mr. Wood, 45 mins.; Mr. West, 45 mins.; Mr. Douglas, 30 mins.
Soloist under instruction:—Mr. Skinner, 1 hr. 15 mins.
"A" Licence Pilots:—Mr. Story, 1 hr. 30 mins.; Mr. West, 1 hr. 45 mins.
No flying took place during the period August 19 to September 8, as the machine was undergoing overhaul for C. of A.
On Wednesday, September 12, the machine was flown by Maj. Clarke over the Hythe Canal to co-operate in the Venetian Fete. Mr. G. A. Walsh endeavoured to bomb a motor-boat from the back seat with bags of flour. Owing to the very difficult conditions, which did not allow the machine to come down close to the target, no direct hit was registered, but under the circumstances Mr. Walsh's bombing was surprisingly accurate.
On Saturday, September 15, Maj. Clarke flew the machine to the Suffolk Club's meeting at Hadleigh, and succeeded in winning the cup presented by that club for the first arrival after 11 o'clock in the Rally Competition. This is the first award secured by the club and the first time we have entered for any competition.
Later on the same day, one of our "A" licence pilots, Mr. R. West, misjudged a landing, and the resultant shock proved the great strength of the new split axle undercarriage and the inability of the fuselage to withstand the impact. The machine will necessarily take some time to repair as the fuselage is badly damaged.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending September 14.—Total flying time, 38 hrs. 5 mins. Dual instruction, 21 hrs. 25 mins. "A" pilots, 10 hrs. 25 mins. Solo, 3 hrs. 55 mins. Passenger flights, 45 mins. Instructors Solo and Tests, 1 hr. 35 mins.
Instruction (with F./Lt. Swoffer and Mr. W. H. Dudley): Messrs. Walker, Brodrick, Hall, Brewster, Craske, Beagley, Turner, Tobutt, Sturge, Calkley, Reuther, Evershed, Weekes, Mattocks, Milford, Fletcher, Mrs. Gordon, Smith, Cmdr. Bell, Lieut. Du Cane, Major Thorn, Miss Home, Mrs. Crook, Lieut. Roskill, Lieut. Oswald, Lieut. Coode, Miss Grace, Lieut. Des Graz.
"A" Pilots: Messrs. Whille, Michelmores, Goldman, Sturge, Wells, Parker, Curtis-Nuthall, McKechnie, Symmons, Hoare, Capt. Kirby, Lieut. Heath, F./Lt. De Burgh, Miss Grace, F./O. Hayter, Lieut. Collier, S./Lt. Tillard.
Soloists: F./O. Fagan, F./O. Hughes, Mr. Hall, Lieut. Du Cane.
Passengers: Messrs. Phillips, Feilman, Grayson, Mountenay, Guinness, Miss Turner, Miss Wills, Miss Howe, Miss Grayson, Miss Wise, Mrs. Caddy.
We were pleased to see Miss Grace back at the club this week after her recent accident. She apparently suffers no ill-effects as she took the air again with all her old zest.
Mr. M. S. Hall made a successful first solo flight and we hope that he will soon complete his tests for an "A" licence.

Our activities have been considerably reduced owing to shortage of aircraft, but we hope that this is only a temporary trouble.

Bournemouth Section

The Headquarters of this section are at the Hotel De Gresley, Fisherman's Walk, West Southbourne. Mr. T. W. Thiem, the proprietor, has kindly granted the use of the hotel, free of all cost, for 12 months—a sporting action that is appreciated very much indeed.

ISLE OF PURBECK LIGHT AEROPLANE CLUB

REPORT for week ending September 15.—Flying time, 17 hrs. 20 mins. Dual, 4 hrs. 20 mins.; solo, 40 mins.
Club work has been somewhat curtailed this week, owing to the fact that the Spartan, living up to her name, became restless on hearing about the milk war. Feeling it was necessary to soothe her and assist our firm friends the farmers, we offered her services to Alderman E. W. Langford, Mayor of Hereford and Chairman of the National Farmers' Union Milk Committee, who has since been airing his views and himself in almost every milk-producing area in the country, from Wiltshire to Northamptonshire, and incidentally we believe controlling the Spartan as well as the milk war.
Late news.—Our first soloist climb to 10,000 ft. in 24 mins. and landed on the mark without the help of the Cirrus Mark III.

LIVERPOOL & DISTRICT AERO CLUB

FLYING report for week ending September 15.—Total time flown, 26 hrs. 10 mins. Dual, with Mr. Allen, 13 hrs. 25 mins. Solo, 12 hrs. 45 mins.
Dual, with Mr. Allen: Mrs. Vernon, Mrs. Eills, Messrs. Barber, Barker, Compan, Crosthwaite, Chatterley, Edgar, Foley, Perkins, Reville, Sparke, Wilcox, Rev. Woosnam-Jones (under instruction).
Soloists: Messrs. Greenhalgh, Francis, Henderson, Moulds, McClure, Wilcox.
"A" pilots: Messrs. Benson, Christie, Crosthwaite, Pixton.
Joy flights with Mr. Davison: Messrs. Francis, Freestone, Leete, Reville.
Joy flights with Mr. Ward: Messrs. Alcock, Barker, Greenhalgh, Tatler, Mrs. Keniston.
Joy flights with Mr. Brooking: Mr. Moulds.
We were visited on the 13th by Mr. D. Merton on his slotted "Moth" QZ en route from Renfrew to Yeovil. Lieut. and Mrs. Bentley arrived for the week-end on Saturday evening in "SO," complete with Mk. III Cirrus, split undercarriage and other refinements.
Machines XX and XY gave an exhibition of flying on Saturday at Port Sunlight in connection with Messrs. Lever Bros.' Founders' Day Celebrations. Pilots: Allen and Christie.
Our small flying time this week is due to a number of soloists being away and one of them buying a motor bicycle.
No flying took place last week owing to Mr. Allen not taking over till Sunday last.

MIDLAND AERO CLUB

REPORT for week ending September 15.—The total flying time was 47 hrs. Dual, 28 hrs. 10 mins. Solo, 12 hrs. 40 mins. Passenger, 5 hrs. 11 mins. Test, 59 mins.
The following members were given dual instruction by F./Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe: A. E. Colman, G. P. Haylock, R. G. Welch, C. T. Davis, J. R. Guthrie, T. W. Wild, J. A. V. Cook, M. A. Murtagh, F. D. Scott, J. K. Morton, H. E. Evans, M. C. Wilks, N. J. Nock, F. J. Steward, H. Coleman, J. Fitzgerald, W. J. Halland, M. Blakeway, P. M. Patel, J. A. Ridsdale, J. B. Briggs, T. H. Drury, Mrs. Leigh Fernor, Dr. W. G. Tilleke, Major D. Thompson, Capt. J. C. Chaytor.
Soloists: E. P. Lane, J. R. Guthrie, R. B. Laidlaw, R. G. Welch, J. W. Astley, E. R. King, R. L. Jackson, S. H. Smith, M. A. Murtagh, G. Robson, R. C. Baxter, W. M. Morris, N. J. Nock, Capt. J. C. Chaytor, H. E. Evans, F. J. Steward, S. Duckitt, J. Cobbe, C. W. Fellows, J. B. Briggs, W. J. Halland, J. A. V. Cook, E. R. King, R. D. Bednell and G. C. Jones.
Passengers: R. E. Cook, A. Harley, Mrs. Harley, J. R. Guthrie, D. Mendez, Miss Mendez, J. H. Green, Miss Adelson.
Messrs. R. B. Laidlaw and M. A. Murtagh passed all tests for their "A" licences.
Four members made successful first solos: Messrs. F. J. Steward, J. A. V. Cook, H. E. Evans, and "Bob."
Our flying this week has been considerably curtailed by the appearance of the usual Castle Bromwich morning mist.

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending September 16.—Total flying time, 33 hrs. 20 mins. Instruction, 6 hrs. 50 mins. "A" Pilots, 16 hrs. 15 mins. Solo training, 8 hrs. 20 mins. Passengers, 1 hr. 35 mins. Tests, 20 mins.
Instruction (with Mr. J. D. Parkinson): Miss Slade, Miss Wendall, Messrs. Hall, Hayton, King, Tomkins, Stobie, Sadler, McLeen, Wardill.
"A" Pilots: Mrs. Heslop, Miss Leathart, Messrs. Leech, De Pledge, Wardill, Runciman, Irving, Stobie, Turnbull, R. N. Thompson, Wilson, Percy, Heppell, C. Thompson, Phillips, H. Ellis, Dr. Dixon.
Solo training: Miss Slade, Mr. Sadler.
An enjoyable evening was spent last Friday when a dinner was given to Mr. J. B. Parkinson, on the occasion of his departure to Canada. Sir Joseph Reed was in the chair and made a presentation to Mr. Parkinson. A number of club members endorsed Sir Joseph Reed's remarks as to the good work Mr. Parkinson has done for the club, and we all wish him every success in his new surroundings. We also congratulate "Parky" who on his last day as instructor here succeeded in sending off Miss Slade and Mr. Sadler on height tests for "A" licences. These two members did exceedingly well, and we are

pleased to place on club records two more pilots. A forced landing competition was held yesterday and a dozen members competed. Mr. C. Thompson carried off first prize and put up a very good performance.

NORFOLK & NORWICH AERO CLUB

FLYING report for week ending September 16.—Total flying time, 47 hrs. 30 mins.

Dual (with Mr. Young): Messrs. W. S. Coates, A. A. Rice, H. M. Smith, W. S. Rope, C. Ransom, R. Harvey, G. Girling, Mrs. Cator, R. H. Wright, C. Land.

Soloists: Messrs. A. G. Barrett, A. G. Marshall, N. Brett, H. Neave, F. Gough, R. T. Harmer, W. P. Cubitt, E. Lambert, D. Corsellis, A. A. Rice, G. F. Surtees, H. Malcolm Smith, H. Pank, C. Land, E. Varden Smith, W. A. Eamsay. Passengers: 19.

With three machines once more we feel a complete club, and as our flying time proclaims, it does make a difference. We are thankful to Mr. Brett that we have three, as he was kind enough to make a very nice forced landing when he ran out of petrol the other day. Imagine it. No petrol, no engine. And yet an aeroplane still. It was his first attempt at forced landings and he deserves full marks. Having spotted a threshing machine operating so as to give him wind direction, he promptly landed in the field and 'phoned up the B.P. man. As soon as he arrived back at the aerodrome he again saved the club a machine by pulling a "Moth" round which was heading straight for the hangar. There was only an inch to spare between them, but after all there is only an inch between life and death. Certainly Mr. Brett has earned the thanks of the club.

Consternation was caused on Sunday afternoon by Brer rabbit. The poor thing was basking happily in the sun when a fox terrier discovered him. Then the fun began. Rabbit one side of a wooden fence and dog the other. Greyhound racing is play to the real thing undiluted. The betting was on the rabbit, and it won. Self-preservation, ever prominent in those animals, came to the fore, and by a series of tactics it evaded its pursuer and reached the nearby hedge with safety. Three aeroplanes and six people went out to lunch on Sunday morning. All returned safely and looking very satisfied with themselves.

THE NORTHAMPTONSHIRE AERO CLUB

ARRANGEMENTS have now been made for the opening of the new Northamptonshire Aero Club's aerodrome at Sywell, Northamptonshire, on Saturday, September 29, 1928, when an Aerial Pageant will take place. Air Vice-Marshal Sir Sefton Brancker has consented to open the Pageant.

Many private owners and manufacturers have arranged to attend, including amongst the latter De Havillands and A. V. Roe.

The Club has been extremely fortunate in obtaining as its first President the Right Hon. The Earl Spencer, and amongst its Vice-Presidents are Lord Bray and Lord Erskine, Lieut.-Colonel C. L. Malone, M.P., and many other gentlemen, whose interest augurs well for the future of the club.

The committee's arrangements for the Pageant are proceeding satisfactorily, and given fine weather, there is no doubt that the public will be able to enjoy an interesting spectacle, as many pilots have promised to attend and compete in the various events.

The programme will contain many interesting events, including folding and unfolding competitions—Balloon bursting, bomb dropping on cars, exhibition flying and aerobatics, whilst members of the public will be able to indulge in their desire for thrills by joy riding at popular prices.

All private owners are cordially invited to attend the Pageant—if possible by air, and for their information the Aerodrome is situate on the Northampton-Kettering Road 4 miles N.W. of Northampton—the nearest large landmark being Sywell Wood.

Arrangements will be made for any pilots who wish to stay the night at Northampton, and the secretaries would be obliged if notification could be given to them as early as possible at 19, Market Square, Northampton, or the Grand Hotel, Northampton. Machines may be left overnight if desired, but pegs and ropes should be brought.

The club would welcome entrants to the various competitions, and forms of entry will be forwarded on application to the joint secretaries.

Flying will commence at 2 p.m., but entrants should arrange to arrive before that time, and should report on arrival to Capt. J. Addis, D.F.C., at the Aerodrome.

NOTTINGHAM AERO CLUB

REPORT for week ending September 13.—Flying time, 21 hrs. 5 mins. Instruction, 8 hrs. 55 mins. "A" pilots, 6 hrs. 15 mins.

Solo (under instruction): 3 hrs. 55 mins. Passengers, 55 mins. Tests, 1 hr. 5 mins.

Instruction (with Mr. Martin): Messrs. Taylor, Cudlip, Paul, Chawla, Selvey, Hutchinson, Thorpe, Winn, Wynn, Thirlby, Shipside, Glenn, Hancock, Bradley, Kay.

Solo "A" licence: Messrs. Taylor, Paul, Pilgrim, Selvey, Whithy, Bradley, Solo (under instruction): Messrs. Chawla, Shipside, Winn, Glenn.

Passengers: Miss L. Smith, Miss D. Smith, Miss Winn, Miss Dugworth, Mrs. Shipside, Mr. Crompton.

Our new machine, a G type Moth with Cirrus Mk. II engine, registration letters G-AABA, was duly collected by Mr. Martin on Saturday, 8th inst. from Stag Lane, and brought to Hucknall, since when it has been in great demand. The split undercarriage is a great improvement, and is ideal for school work. We have quite a large number of members waiting to take their "A" tickets, so that we ought to have a fairly successful month after all.

YORKSHIRE AEROPLANE CLUB

REPORT for three weeks ending September 15.—Flying time, 94 hrs. 45 mins. Dual, 48 hrs. 40 mins. Solo, 42 hrs. 40 mins. Passengers, 3 hrs. 25 mins. The above times were effected on two machines.

Instruction (with Capt. Beck): Misses Ellison and Woodhead, Messrs. Mann, Palmer, Dujardin, Parks, Bamford, Ives, Gaunt, Arundel, Gill, Lloyd, Reynolds, A. Senior, G. Senior, A. Crowther, Fitton, Watson, Brodie, Jackson, Collins, Ostler, Batcock, G. A. Little, Dooks.

Soloists: Messrs. A. Senior, Dick, Fitton.

"A" Pilots: Messrs. Humphries, Mann, Thomson, Ellison, Norway, Lax, Birch, Lister, Ambler, Clayton, Wood, Reynolds, A. Crowther, Wilson, R. Atcherley, Miss Woodhead. Passengers, 15.

We regret having omitted to publish a report for three weeks owing to the absence of our Official Reporter on holidays.

By way of news, Mr. Arthur Senior went solo, and put up a really good show on September 2. On the 3rd, Capt. Beck took Mr. Miller to Glasgow and back. During the trip the usual Scotch weather was experienced. On the 5th, our June got married to our George, and we take this opportunity of wishing them every happiness.

Amongst the visitors during the past three weeks we have had Messrs. Duncan, Davis and Oldmeadow, of H.S.F., Messrs. Crammond, Lines, Rawson, Rimmer, Holmes, and Capt. Gladstone, all of whom we were thoroughly pleased to see. Mr. George Wood has again lost his hat.

FROM THE FLYING SCHOOLS

Henderson Flying School, Brooklands Aerodrome

REPORT for week ending September 13.—Total flying time, 45 hrs. 20 mins. Dual with Col. Henderson: Messrs. DuCane, Egston, Miss Wellby, Garthwaite, D'Eyncourt, May, Preston, Vatcha, Moursi, Taylor, Rogers, Groner, Forsyth. Dual with Capt. Davis: Messrs. Oldmeadow, Austin, Kerr, Banks, Major Parkin, Mrs. Scott, Leigh, Hsiao, Mrs. Monckton. Dual with Capt. Davenport: Miss Wellby, Mrs. Monckton, Taylor, Daniel, Kerr.

The school has been kept very busy this week. Mr. Courtney-Bankes passed all his tests for his "A" licence successfully.

Mr. May flew his first solo.

Soloists: Messrs. Bankes, Miss Wellby, Groner, Leigh, May, Hsiao, Oldmeadow, Austin, Taylor, Stewart.



"THE OLD ORDER CHANGETH": This photograph is of interest in showing the last registration letters of the old series and the first of the new. The machine in the foreground is a "Cirrus-Moth," and according to the old system of registration letters the next machine should have been marked G-ECAA. Instead of this, however, the Directorate of Civil Aviation has gone over to a new series, commencing G-AAAA. The machine to receive the new letters is a "Gipsy Moth," here seen in the background. This has been purchased by Captain G. de Havilland for his private use.

AIRISMS

FROM THE FOUR WINDS.

The Portuguese Flight to Africa

THE Portuguese airmen, Capt. Pais Ramos and Oliveira Viegas, accompanied by Lieut. Esteves and Serg. Antonio, who are flying in two Vickers "Valparaiso" biplanes (Napier "Lion") from Lisbon to Portuguese East Africa, are making good progress so far. On the day of their departure from Lisbon they accomplished, in two stages, 826 miles in 7 hrs. 50 mins. Their first stage was to Casablanca, thence *via* the coast as far as the Umm er River, through the desert and plain of Akermut to Mogador, and Agadir—taking 2 hrs. 30 mins. for this stage. Owing to a breakdown of the Morocco postal service, news of their arrival at Agadir was not received until the following day. On September 6 they completed the third stage to Cape Juby, a distance of 267 miles in 3 hrs. 15 mins. This particular stage was an exceedingly dangerous one, for no landing places exist between Agadir and Cape Juby, apart from the danger in the event of a forced landing of the airmen being made captive by Moorish brigands—who are somewhat active in this locality. The fourth stage, to Villa Cisneros (404 miles), was scheduled to be made on September 7.

Great Flying Boat Cruise Completed

THE four R.A.F. Supermarine Napier "Southampton" flying-boats reached Singapore from Java on September 15, and thereby completed the great cruise of 25,000 miles which started from Plymouth, England, last October under the command of Group-Capt. H. M. Cave-Browne-Cave, D.S.O. They went through India to Singapore on the outward cruise, and then flew round Australia, returning to Singapore. After a short stay they will possibly undertake a further cruise in Far Eastern waters.

Pretoria-Cape Town in 7½ hours

COL. SIR PIERRE VAN RYNEVELD, of the Union Air Force, accompanied by General Brink, chief of the General Staff, flew non-stop from Pretoria to Cape Town in 7 hrs. 27 mins. The distance is 1,000 miles. This beat the record made by Lieut. Meintje by 28 mins.

American Air Derby

MR. "ART" GOEBEL was the only competitor out of the nine starters to complete the non-stop air race from New York to Los Angeles, where he arrived in his Lockheed "Vega" monoplane at 3.22 p.m. on September 13. He was disqualified, however, for making a landing on the way.

Air Mail Machine Saved

THE French amphibian flying-boat which has been experimenting with an air mail service from incoming liners in the Atlantic made a forced landing on September 13, only a short time after being catapulted from the liner *Ile de France*, when off the Scilly Isles. On board were Lieut. Demougeot (pilot), Lieut. Domergue and M. Moulon Marcel (wireless operator). It was adrift for 10 hours before being salvaged by a trawler, *Children's Friend*. The crew were none the worse for their experience. Their wireless had failed to function. Later the machine was picked up by a French boat and towed to the coast. The mails were landed at Newlyn, Cornwall.

German Zeppelin Ready

THE new German Zeppelin is now completed at Friedrichshafen and made a successful test flight lasting three hours on September 18. It was to have flown on September 15, but the necessary permit had not been forthcoming. It has cost over £250,000 to build. There is accommodation for 20 passengers, and there are 10 cabins, each having two bunks. The engines, five in number, are Maybach 530 h.p. air-cooled types. On its maiden flight it attained an average speed of 126 k.p.h. (78 m.p.h.).

Round the World by Air

MR. G. H. STORCK, a retired American business man, left Southampton Water on September 15 in an Avro "Avian" seaplane, proposing to circle the globe. He hopes to fly 27,000 miles at the rate of 800 miles a stage. From Europe he will steer towards India and then to China and Japan. The Pacific Ocean will be crossed *via* the Aleutian Islands, after which the intended course lies over the Behring Sea to Alaska.

Publicity by Air

Two large monoplanes appeared over New York on September 17 circling low, then by means of powerful amplifiers a particular brand of cigarettes was announced in deafening tones to the gaping crowds below.

French Air Minister Appointed

M. LAURENT EYNAC has been appointed French Minister for Air, an independent position created as a sequel to the death of M. Bokanowski in an air accident, who combined the office with that of the Minister of Commerce. M. Eynac was Under-Secretary for Air in all the Governments between 1921 and 1926.

French Air War Practice

THE French Air Force has engaged in air manoeuvres recently, in the course of which 350 machines flew in formation over Paris, whilst above, at an altitude of 10,500 ft., M. Painlevé, the Minister of War, reviewed them from a two-seater machine.

German Altitude Record

ON September 14 the German pilot Schinzinger, on a Junkers W 34 aircraft with "Bristol" Jupiter engine, achieved a new world's record for altitude with 1,000 kilos. useful load, reaching 6,805 m. (22,320 ft.), and beating the previous record by about 3,000 ft. The F.A.I. has been notified of the flight.

Berlin-Tokio

BARON VON HUENEFELD, the hero of the first east to west Atlantic flight, has started on a new venture—a flight from Berlin to Tokio, and probably farther. The Baron, piloting a Junkers W34 monoplane "Europa"—the same machine which made the first unsuccessful German attempt to cross the Atlantic, and sister ship to the "Bremen"—left Tempelhofer Aerodrome, on September 18, for the East. He is actually acting as second pilot, having only just learnt to fly, and M. Lindner, a Swede, is acting as chief pilot. The "Europa" reached Sofia at noon the same day.

"Bert" Hinkler Returning

MR. "BERT" HINKLER, who flew to Australia in a fortnight in an Avro "Avian" (Cirrus), is returning to England by boat with his wife. He hopes to return to Australia by air in even shorter time than before.

Cape Town-England Flight

FLYING-OFFICER P. MURDOCH, who is flying to England from South Africa, left Pretoria on September 13 and reached Bulawayo. On September 17 he left Elizabethville for Tabora.

Australia—England

CAPT. FRANK HURLEY, of Sydney (who was with the 1914-17 Shackleton expedition in the Antarctic), will start shortly, accompanied by Flying Officer Moir, on a flight to England and back, following closely the route taken by Capt. Ross Smith in 1919 and Sir Alan Cobham in 1925. The round trip, which will be about 24,000 miles, is expected to last a month, including a stay in England.

Aircraft in the Cotton Fields

SIR WILLIAM HEMBURY, Managing Director of the British Cotton Growing Association, leaves England at the end of this year on his tour of the Cotton Fields. During this tour, he intends to test the value of air transport as a means of assisting him in his work. We feel certain he will find aircraft of considerable value.

Autogiro Crosses Channel

SEÑOR DE LA CIERVA flew his Autogiro (Lynx 180 h.p.) machine across the Channel for the first time on September 18. He left Croydon about 10 a.m., and first landed at St. Inglevert, near Boulogne, about an hour later. He then flew on to Paris *via* Abbeville. On the flight he was escorted by a Goliath aircraft engaged on the Channel services. The Channel itself was flown in 15 minutes. A French journalist was the passenger. Señor de la Cierva intends to tour his machine on the Continent for propaganda purposes, following the recent tour in England. The landing at Paris attracted considerable notice.

THE ROYAL AIR FORCE

London Gazette, September 11, 1928

General Duties Branch

The following Pilot Officers are promoted to rank of Flying Officers:—S. Pritchard-Barrett (April 10); T. C. Dickens (June 11); H. F. Surén (July 4); L. S. Tindall (July 10); G. H. G. S. Jenkins (July 10); J. Barton (July 10); G. A. G. Johnston (July 15); F. D. Biggs (Aug. 15).

Flying Officer A. K. Bamber is transferred to Reserve Class A. (Sept. 10). Flight Lieut. (Maj., R.A.R.O.) V. M. Kenny-Leveck, M.B.E., relinquishes his short service commn. on account of ill-health (Sept. 1); Flying Officer D. Robinson (Lieut., Glos. Regt., T.A.) relinquishes his short service commn. on account of ill-health (Sept. 12); Lieut. J. D. Ainger, R.N., Flying Officer, R.A.F., relinquishes his temporary commn. on return to Naval duty (Sept. 6).

Medical Branch

Flying Officer J. Hutchieson, M.B., is granted a permanent commn. in this rank (Sept. 12); Flight Lieut. (Hon. Sqdn.-Ldr.) G. S. Ware, M.B., relinquishes his temporary commn. on completion of service, and is permitted to retain the honorary rank of Sqdn.-Ldr. (Sept. 11).

Chaplains' Branch

The Rev. J. G. Stephens, B.A., relinquishes his short service commn. on completion of service (Sept. 12).

Memorandum

The permission granted to Second-Lieut. W. R. Bowmer to retain his rank is withdrawn on his enlistment in the Supplementary Reserve (Aug. 10).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

G. C. Holland is granted a commn. in Class AA (ii) as a Pilot Officer on probation (Aug. 27); Flying Officer L. C. Burcher is employed with Regular Air Force for a period of three years (Aug. 27); Pilot Officer F. Davison is promoted to rank of Flying Officer in the Special Reserve (Aug. 15). The following officers are transferred from Class A to Class C: Flight Lieut. H. V. Stammers (March 10); Flying Officer A. A. B. Chipper (Aug. 30); Flying Officer F. G. M. Sparks (April 6).

Medical Branch

Flying Officer E. D. Gray, M.A., M.B., relinquishes his commn. on completion of service (Sept. 11).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (City of Edinburgh) (Bombing) Squadron.—The following to be Pilot Officer:—E. S. V. Burton (Aug. 14).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commander W. V. Strugnell, M.C., to No. 9 Sqdn., Manston, 1.9.28. Squadron Leader E. D. Atkinson, D.F.C., A.F.C., to No. 21 Group, H.Q., West Drayton, 1.9.28.

Flight Lieuts.: A. Hunter, O.B.E., to Home Aircraft Depot, Henlow, 17.9.28. A. J. Long, to H.Q., Halton, 17.9.28. T. S. Ivens, F. W. W. Wilson and R. V. M. Odber, to Armament and Gunnery School, Eastchurch, 2.9.28. C. H. C. Woollven, M.C., to remain at Home Aircraft Depot, Henlow, instead of to R.A.F. M.T. Depot, as previously notified. K. L. Harris, to No. 8 Sqdn., Aden, 24.8.28. O. E. Carter, to R.A.F. M.T. Depot, Shrewsbury, 1.9.28. R. J. M. de S. Leger to remain at Home Aircraft Depot, Henlow, instead of to R.A.F. Station, Kenley, as previously notified. C. G. Hancock to Aeroplane and Armament Experimental Estab., Martlesham Heath, 16.9.28. F. W. Wiseman-Clarke, to H.Q., India, 16.8.28.

Flying Officers: A. C. Sharp, to Armament and Gunnery School, Eastchurch, 2.9.28. R. L. Bateman, to No. 5 Flying Training School, Sealand, 29.9.28. P. J. Stapleton, to No. 39 Sqdn., Bircham Newton, 31.8.28. A. M. D. Howes, to Andover Communication Flight, 17.9.28. N. R. Buckle, to No. 100 Sqdn., Bicester, 17.9.28. F. C. T. Rowe, to R.A.F. Station, Kenley, 16.9.28. R. H. Carter, to No. 45 Sqdn., Middle East, 1.9.28. F. W. L. C. Beaumont, to R.A.F. Depot, Uxbridge, 7.9.28.

Pilot Officers: P. C. Fair, to No. 207 Sqdn., Eastchurch, 11.9.28. D. J. T. Haynes, to No. 100 Sqdn., Bicester, 11.9.28. W. D. J. Michie, to No. 2 Sqdn., Manston, 1.9.28. J. C. B. Tinling, G. F. Simond J. E. Markby and A. le R. S. Upton, to No. 13 Sqdn., Andover, 1.9.28. D. M. Harrison, R. W. K. Stevens and J. B. Veal, to No. 4 Sqdn., S. Farnborough, 1.9.28. J. W. Smith and C. K. Turner, to No. 16 Sqdn., Old Sarum, 1.9.28. H. G. Hicks, M. C. Collins, C. L. Myers and H. L. Piper, to No. 26 Sqdn., Catterick, 1.9.28. J. C. K. Rogers, to R.A.F. Base, Calshot, 1.9.28. M. H. Clare, P. F. Luxton and P. H. Smith, to No. 1 Sqdn., Tangmere, 1.9.28. A. D. Bennett, A. G. Lester and P. N. Sealy-Allin, to No. 23 Sqdn., Kenley, 1.9.28. J. A. Green-shields and C. A. Pearson, to No. 32 Sqdn., Kenley, 1.9.28. N. F. V. Henkel and L. W. Howard, to No. 43 Sqdn., Tangmere, 1.9.28. L. V. Bennett and F. Wells, to No. 19 Sqdn., Duxford, 1.9.28. C. H. Appleton and H. P. Wilson, to No. 41 Sqdn., Northolt, 1.9.28.

Stores Branch

Squadron Leader W. C. Green, M.C., to No. 3 Stores Depot, Milton, 12.9.28. Flight Lieut. D. W. Dean, to H.Q., Inland Area, Stanmore, 10.9.28. Flying Officers: G. C. Wilson, to R.A.F. Station, Worthy Down, 18.9.28. J. H. P. Clarke, to No. 600 Sqdn., Hendon, 8.9.28.

Accountant Branch

Pilot Officer H. A. Frost, to Elec. and Wireless School, Flowerdown, 17.9.28.

R.A.E.S. AND INST.AE.E.

Official Notice.—The following cable has been sent to Group-Capt. Cave-Browne-Cave on the completion of the remarkable cruise of the flying-boats under his command:—"Council have followed with the deepest interest your highly successful cruise. On behalf of the R.Ae.S.I. they send their warmest congratulations to yourself and crews of the machines on termination of this historic cruise, and the great technical results achieved.—Sempill, President."

The Sir Charles Wakefield Gold Medal.—At the last meeting of the Council of the Royal Aeronautical Society the Sir Charles Wakefield Gold Medal, which is awarded annually to the designer of any invention or apparatus tending towards safety in flying, was unanimously awarded for 1928 to Mr. F. Handley Page, for his work in connection with the automatic slot.

The Society's Silver Medal.—The silver medal of the Society, which is awarded for some advance in aeronautical design, has been awarded for the year 1928 to Mr. B. N. Wallis for his work in connection with the design of airships.

R.38 Memorial Prize.—The R.38 Memorial prize is offered annually for the best paper received by the Society on some subject of a technical nature in the science of aeronautics, preference being given to papers which relate to airships. As a result of the report of the referees, the council have awarded the prize for 1927 to Mr. H. Roxbee Cox for his paper on "The External Forces of an Airship Structure, with Special Reference to the Requirements of Rigid Airships Design." The paper, which is a very lengthy and important one, will be published in a forthcoming issue of the Journal of the Society.

J. LAURENCE PRITCHARD,
Secretary.

Canadian Air Mail Services

ARRANGEMENTS are being made for air mail service linking up certain Canadian centres, such as Halifax, St. John, Quebec, etc., with New York, and New England cities, and Montreal, Ottawa, Toronto, with Buffalo and Detroit.

Air Mapping in Canada

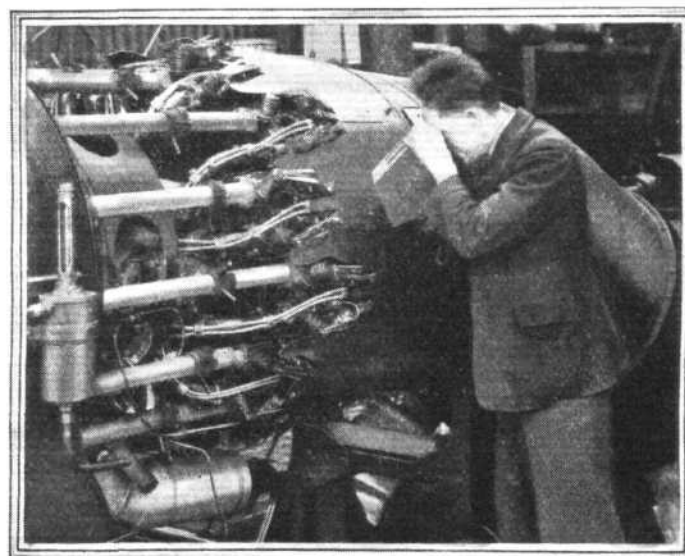
ONTARIO Government aeroplanes engaged in mapping forest areas and in forest fire patrol work completed 5,000 flying hours in the first eight months of this year.

The Air Speed Record

An attempt will be made at Calshot, at any moment, by Flt.-Lieut. D'Arcy Greig, of the Royal Air Force, to break the world's air speed record of 318½ miles an hour. Flt.-Lieut. Greig has begun his preliminary and trial flights at Calshot. In his officially-timed flight he hopes to reach a speed of between 330 and 340 miles an hour on the Supermarine-Napier.

The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the Fund was held at Idlesleigh House on September 13. Lieut.-Commander H. E. Perrin was in the Chair, and the other members of the Committee present were:—Mr. W. S. Field and Squadron-Leader Douglas Iron, O.B.E. The Committee considered in all 12 cases, and made grants to the amount of £131 14s. The next meeting was fixed for September 27, at 2.30 p.m.



Checking the valve motion of an Armstrong Siddeley "Jaguar" engine running at full load and speed, by means of the Ashdown Rotoscope. Other important functions of this Rotoscope are inspection of the running of the propeller and final testing for accuracy of the tachometer.

CORRESPONDENCE

"STEP RESISTANCE"

[2174] I have been very interested in Mr. Munro's articles on "Seaplane Float Design" in recent issues of the AIRCRAFT ENGINEER. In particular I read with considerable pleasure his and Mr. Dowty's notes on "Step Resistance" in the current copy.

Except for some of the completely step-less floats produced during the war, step resistance has seldom been considered in practical design up to a very late date. This is strange since the retractable step or other mechanisms with the same object have been the subjects of patents during the last fourteen years to my knowledge. One of the earliest was a patent taken out for the combination of steps formed on the underside of the float, and of a means for fairing the steps in automatically or otherwise when the float was lifted from the water.

A similar scheme was suggested to me by Flying-Officer Bullock three years ago, and after a thorough investigation we protected the invention. It was offered to all the British firms building racers for the Schneider Trophy, but its advantages were not considered by them sufficiently important for immediate development. We are still satisfied, however, that such a device will be adopted eventually, at least on all high-speed machines.

Mr. Dowty's method of dropping the step is open to the objection of structural difficulties owing to its being the most highly stressed portion of the float. And on one point, I believe that he is overstating his case in claiming a greater saving than can reasonably be expected.

It must be remembered that the vertical surface of the step is hardly semblable to that of a plane surface normal to the wind and exposed on both sides.

We await with interest the results of actual flying tests on a machine fitted with such a device.

Golders Green,
September 1, 1928.

M. LANGLEY,
A.M.Inst.N.A., A.M.I.Ae.E.

THE AIRSHIP CLUB

WITH the coming revival of airship activity, we think the following appeal issued by the Airship Club should be of special interest to readers of FLIGHT:—

"Ballooning in Great Britain, formerly a popular and inexpensive pastime, with some little scientific interest and a spice of adventure, safe, and having a useful connection with airship work, is now, nevertheless, in almost complete eclipse. Aeroplanes have absorbed efforts at one time spent on ballooning, and the increased cost of labour and material since the war has been a deterrent. In the United States, and in France, Belgium, Italy, and Germany, however, ballooning is still widely enjoyed; whilst every year the Gordon Bennett and other balloon races attract large entries.

The Airship Club, which is associated with the Royal Aero Club, was formed, as its name indicates, for the purpose of popularising airships on the same lines as the light aeroplane clubs popularise flying. But the Airship Club has never enjoyed any form of Government subsidy, and its activities are curtailed by the lack of means and material. At the present time it is compelled to be content with a slow rate of development; but it is watching opportunities, and with the gradual return to normal conditions interrupted by the war it will ere long justify its title. In the meantime, therefore, the active work of the Airship Club is directed to ballooning, which is universally recognised in America and on the Continent as an indispensable qualification for airship piloting.

Recently the Airship Club has acquired three balloons—one of 80,000 cubic feet capacity, one of 60,000, and one of 40,000 cubic ft. The club is now in a position to provide the means for ballooning to its members, many of whom were balloonists before the war, or went through balloon courses during the war. All over the country there are many who will hail with satisfaction the opportunity for an occasional balloon trip, and the club will now be in a better position to secure Great Britain's representation in the International Gordon Bennett contest.

Promises of engines for three small airships are now available, together with other parts, and the club only requires an increase of membership to allow airship yachting to commence. The recent race for the King's Cup has shown what light aeroplane clubs can do with Government assistance. The Airship Club hopes to do as well by the unaided efforts of its friends and members, and the assistance of all those interested is invited to this end.—GRIFFITH BREWER, CUNLIFFE, F. L. N. BOOTHBY (Capt., R.N., retired), A. F. DE MOLEYS, C. C. TURNER. The Airship Club, 3, Clifford Street, W."

IMPORTS AND EXPORTS

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

For 1910 and 1911 figures see FLIGHT for January 25, 1912.

For 1912 and 1913, see FLIGHT for January 17, 1914.

For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1927 being given in FLIGHT, January 19, 1928.

	Imports.		Exports.		Re-Exports.	
	1927.	1928.	1927.	1928.	1927.	1928.
	£	£	£	£	£	£
Jan. ..	1,850	1,220	49,021	157,598	—	330
Feb. ..	679	1,772	63,080	118,622	—	345
Mar. ..	7,087	4,805	106,478	125,901	2,270	1,307
April ..	822	2,904	71,190	134,126	785	3
May ..	1,258	2,513	82,708	118,804	640	640
June ..	1,249	5,916	149,907	86,245	162	1,317
July ..	1,798	2,025	104,167	108,746	750	521
August	2,453	2,566	78,742	97,303	—	100
	17,196	23,721	705,293	947,345	4,607	4,563

PUBLICATIONS RECEIVED

Revue Juridique Internationale de la Locomotion Aérienne. April, May, June, 1928. Per Orbem, 4, rue Tronchet, Paris.

Aeronautical Research Committee Report for the Year 1927-28. H.M. Stationery Office, Kingsway, London, W.C.2. Price 2s. net.

Aluminium Casting Alloys. By George Mortimer. The British Aluminium Co., Ltd., Adelaide House, King William Street, London, E.C.4.

Luftfahrzeuge und Luftfahrzeugmotoren. Vol. I. Deutschen Kraftfahrzeug-Typenschau. Deutsche Motor-Zeitschrift G.m.b.H., Dresden-A-19, Germany. Price M. 2.30.

NEW COMPANIES REGISTERED

SIMMONDS AIRCRAFT, LIMITED.—Capital £20,000, in £1 shares. Acquiring interests in patents, licences, concessions and the like held or to be held by the Simmonds Interchangeable Wing Co., Ltd., and to acquire from O. E. Simmonds licences relating to the building, manufacture, design, sale or otherwise of the Simmonds Spartan Light Aeroplane, &c. Chairman and permanent managing director: O. E. Simmonds. Solicitors: Rowe and Wilkie, 7, Queen Street, E.C.4.

SIMMONDS INTERCHANGEABLE WING CO., LTD.—Capital £100, in £1 shares. Under agreement with O. E. Simmonds, to acquire interests in any invention relating to the design, manufacture or use of aircraft on aircraft parts, in particular, interests in any patents, licences, concessions and the like held by the said O. E. Simmonds. Chairman and managing director: O. E. Simmonds. Solicitor: C. F. Simmonds, 40/44, Holborn Viaduct, E.C.1.

AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1927

Published September 20, 1928

- 13,692. ARMSTRONG-SIDDELEY MOTORS, LTD., and A. E. PLUMB. Fuel pumps for i.c. engines. (295,967.)
- 13,885. L. J. IRVING. Ground-speed indicator for aircraft. (296,039.)
- 14,219. E. LANZEROTTI-SPINA. Valve gear of i.c. engines. (296,125.)
- 14,529. I. SKLENAR and J. R. KELLER. Radial-cylinder i.c. engine. (278,312.)
- 15,873. BRISTOL AEROPLANE CO., LTD., and W. L. GARRETT. Drilling jigs. (296,148.)

APPLIED FOR IN 1928

Published September 20, 1928

- 16,433. I. SKLENAR and J. R. KELLER. Radial-cylinder i.c. engine. (296,296.)

FLIGHT,

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